Figure 240. T-186 northeast profile wall, showing Kewalo wetland (SIHP # -6636), Strata IIa and IIb, view to northwest

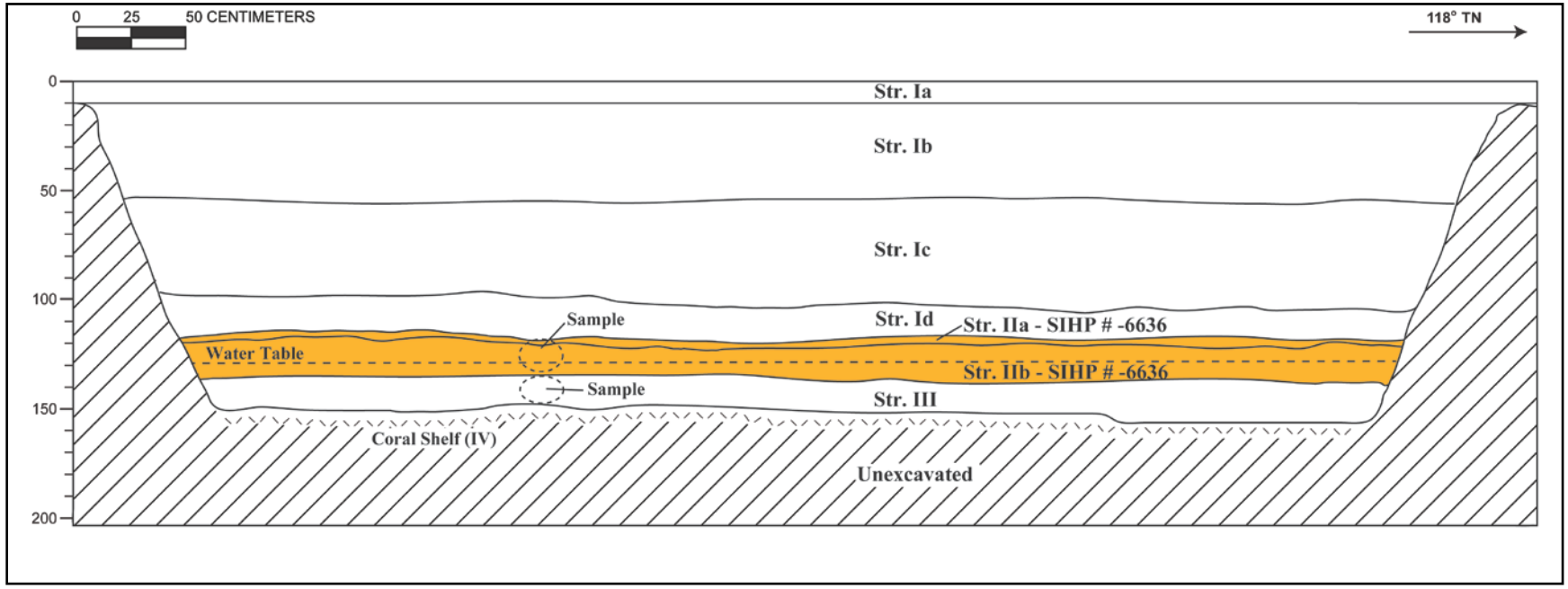

Figure 241. T-186 northeast wall profile showing Kewalo wetland (SIHP # -6636), Strata IIa and IIb

Table 44. T-186 Stratigraphic Description

Stratum	Depth (cmbs)	Description
Ia	0–10	Asphalt
Ib	10–56	Fill; 5 Y 4/1 (dark gray); very gravelly loam; structureless; moist, friable consistency; non-plastic; terrigenous origin; very abrupt, smoother lower boundary; gravel base course
Ic	45–101	Fill; 5 Y 8/1 (white); extremely gravelly sand; structureless, single-grain; moist, friable consistency; non-plastic; abrupt, smooth lower boundary; crushed coral base course
Id	95–118	Fill; GLEY 1 7/1 5 GY (light greenish gray); silty clay; moderate, fine, platy structure; moist, firm consistency; very plastic; mixed origin; very abrupt, smooth lower boundary; hydraulic fill
IIa	112–121	Natural, 5 Y 2.5/2 (black); gravelly clay loam; weak, fine, platy structure; moist, friable consistency; non-plastic; mixed origin; clear, wavy lower boundary; former O-horizon; abundant decaying organic matter overlying wetland sediment; Kewalo wetland sediment; component of SIHP # -6636
IIb	115–136	Natural; 5 Y 5/1 (gray); gravelly loam; moderate, very fine, crumb structure; slightly plastic; mixed origin; clear, smoother lower boundary; natural wetland sediment; Kewalo wetland sediment; component of SIHP # -6636
III	131–155	Natural; GLEY 1 7/10 Y (light greenish gray); loamy sand; moderate, medium, granular structure; wet, slightly sticky consistency; non-plastic; mixed origin; lower boundary not visible; natural marine lagoonal sediment

Summarized below are the current City Center AIS results of the specialized analyses conducted to better characterize the wetland sediments comprising SIHP # -6636. These analyses involved Energy Dispersive X-ray Fluoresence (EDXRF), palynology, wood taxa identification, historic artifact classification, and malacology. Results presented by individual test excavation appear in Volume IV and by analytical study in Volume V.

A single piece of volcanic glass debitage (Acc. # 189-H-1) was collected from SIHP # -6636. It was found in the T-189 Stratum IIb bulk sediment sample. EDXRF analysis indicates that the sample is from a local O‘ahu provenience.

Pollen analysis on six samples from T-191 and T-207 indicated that the wetland sediments in these two test excavations represent sedge marshland. *‘Aheahea* likely grew along the drier margins of the wetlands. The presence of *Acacia* pollen in the uppermost samples from T-191 and T-207 indicated that *koa* trees grew in the vicinity. The pollen record from T-207 suggested that the marsh environment in this area grew drier during the time period represented by the three column samples. A decreasing concentration of Cyperaceae (sedge) pollen appeared to correspond with increasing quantities of Poaceae (grass) and Cheno-am (*‘aheahea*) pollen. As the marsh became drier, ferns became more abundant. Microscopic charcoal was also present in the uppermost samples in T-191 and T-207.

Taxa analysis of seven charcoal samples collected from wetland sediments (Stratum IIb) in T-189 identified two native species: *hao* (cf. *Rauvolfia sandwicensis*), and *‘a‘ali‘i* (cf. *Dodonaea viscosa*), and one Polynesian-introduced species *kukui* (cf. *Aleurites moluccana*). In addition, were several unidentified woods, a temperate hard wood, and a Palm (cf. Aracaceae) also was identified, however, its variety was not determined.

Minimal historic artifacts were collected from the SIHP #-6636 sediments within test excavations T-196, T-198, T-200, T-202A, and T-205. These artifacts date from the late 1800s to early 1900s, and include two bottle glass fragments collected from T-196, Stratum II backdirt (Figure 242). A milled 2 x 4 wood plank (Acc. #198-A-1) was collected from T-198, while one mold-blown glass bottle (Acc. #200-A-1) and three milled wood fragments (Acc. #200-A-2) were collected from T-200 (Figure 243). One brick (Acc. #202A-A-12), made between 1886 and 1918, was collected from T-202A. Pressed wood (6.0 g) and rusted metal (1.5 g) were collected from T-205.

Analysis of the fresh- and brackish-water snails collected from T-186, T-189, T-207, and T-219 identified estuarine, strandline, and shoreline-dwelling species (*A. parvula*, *Melampus* sp., and *B. gracilis*) consistent with a coastal location. The presence of *M. tuberculata* indicated a permanent fresh- or brackish-water environment, typical of marshland. The uppermost sample from T-219 contained two historically-introduced species (*Physa* sp. and *P. duryi*). The presence of these gastropods indicates that this sample dates to the historic period and may be consistent with mid- to late-nineteenth century (or later) rice cultivation.

The buried Kewalo wetland sediments identified within 27 test excavations during the current City Center AIS are designated as part of SIHP # -6636. Historic maps and aerial photography confirm the extent of the Kewalo wetland, which included a large portion of the City Center APE and numerous previous archaeological studies. The depositional sequence observed during the

Figure 242. T-196 glass bottle fragments (Acc. #196-A-1 to A-2) from backdirt pile of Stratum II

Figure 243. T-200 aqua alcohol bottle (Acc. #200-A-1) collected from Stratum IIb

current AIS correlate with previous studies, namely SIHP #-6636 consists of buried wetland sediment present at or near the water table which were deposited atop marine sediments and/or the coral shelf, and subsequently were capped by historic and/or modern fill strata. The sediment described in previous studies as SIHP #-6636 is similar in texture, color, and content to the SIHP #-6636 sediments described in the current AIS project area. The color and texture of SIHP #-6636 sediments varies from brown to gray to black silty clay, sandy clay, clay loam, or silt loam. SIHP #-6636 includes sedge and Cheno-am pollen (dominating the pollen record), charcoal, marine invertebrates, land snails, minimal historic artifacts, and a high percentage of organic material or peat. Although fish scales were not observed in the wetland deposits in the current project area, they were identified in Kewalo wetland deposits in two previous studies (Clark and Gosser 2005 and O'Hare et al. 2004). Radiocarbon and pollen analysis of the Kewalo wetland sediments suggests that the wetlands began forming as early as ca. AD 340 to 600, prior to Polynesian habitation. The interpreted function of SIHP #-6636 is variable among previous studies, which is indicative of the mixed usage of the Kewalo wetland from the pre-Contact era to the early twentieth century. O'Hare et al. (2003), O'Hare et al. (2004), Tulchin and Hammatt (2005), Hammatt (2008), Runyon et al. (2011), and Morriss et al. (2013) identified SIHP #-6636 as buried wetland sediments. Clark and Grosser (2005) identified SIHP #-6636 as pond sediments based on historic maps and research. Altizer et al. (2011) also indicated an unnamed pond in the vicinity, but only found evidence of agricultural sediment.

SIHP #-6636 includes one archaeological feature (Feature 1), a sediment berm that was identified within Waikīkī by O'Hare et al. (2003). It was designated Feature 1 during the current AIS (see Figure 214). SIHP #-6636 Feature 1 was identified within Trenches 12 and 23 (O'Hare et al. 2003) in the southeast corner of their project area (see Figure 219). The sand berm in Trench 12 is described as dark grayish-brown sandy clay, 67 cm in thickness and containing marine gastropods. In Trench 23, it is described as dark gray clay loam with microstratigraphy of sand lenses. In addition, it appeared to be associated with a concentration of coral boulders, interpreted as a possible berm retaining wall, and a wooden fence post, suggestive of a possible fence lining (see Figure 220 and Table 36); the possible wall and fence post/lining also are designated SIHP #-6636 Feature in the current study. Radiocarbon analysis of the sand berm produced a two-sigma calibrated date of AD 1660 to 1890 (78.1% probability) (O'Hare et al. 2003).

Based on the guidance of National Register Bulletin No. 15, SIHP#50-80-14-6636 retains its integrity of location and materials and was previously determined eligible to the Hawai‘i and National Registers under Criterion A (associated with events that have made an important contribution to the broad patterns of our history) and D (has yielded, or is likely to yield information important for research on prehistory or history). Based on the results of the current City Center AIS, and in consultation with SHPD, CSH recommends that SIHP #-6636 does not have the integrity to convey its significance under Criterion A of both the Hawai‘i and National Register. The former land surface and its potential features (i.e., berms, ponds, and other cultural components) are buried and their surroundings have been completely altered by modern development since their time of construction and period of use. Accordingly, CSH recommends that this cultural resource maintains the integrity to support its historic significance only under Criterion D of the Hawai‘i Register and recommends eligibility to the National Register under Criterion D, exclusively for its information potential.

SIHP #-6636 has provided information, and can potentially provide additional information; on pre-Contact to early twentieth century habitation, and agricultural and aquacultural use of the former Kewalo wetland. The current project will potentially impact approximately 1.22 acres of an estimated 62.8 acres of buried wetland based on an interpolation of the cultural resource boundary (see Figure 214). The potential for impact of the buried Kewalo wetland during project construction warrants the implementation of an archaeological monitoring program within the interpolated boundary of SIHP #-6636. Archaeological monitoring at SIHP #-6636 will be research driven with a focus on additional documentation of the depositional sequence, identification of potential subsurface features, and collection of additional in situ wetland sediments for laboratory analysis. Any newly-identified archaeological features associated with SIHP #-6636 will be mapped in plan view and profile, photographed, mapped using GPS, and sampled for radiocarbon, macrobotanical, and/or palynological analysis. Sample collection from SIHP #-6636 sediments or potential features will include discrete bulk sediment samples and column samples. Column sample analysis will potentially provide incremental information regarding diachronic changes in the content and depositional history of the Kewalo wetland sediments across time and space.

5.3.7 SIHP #50-80-14-6856

FORMAL TYPE:	Subsurface remnants of Kolowalu Fishpond
FUNCTION:	Aquaculture
PREVIOUS DOCUMENTATION:	Bell et al. (2006), O’Hare et al. (2006), and Thurman et al. (2009)
AGE:	Pre- and post-Contact
NUMBER OF FEATURES:	N/A
TYPES OF FEATURES:	N/A
DISTRIBUTION:	Approximately 0.98 acres (within current project area), 7.17 acres (total area)
LOCATION:	Along Queen Street between Kamake‘e and Waimanu Streets (East Kaka‘ako Geographic Zone)
TAX MAP KEY:	[1] 2-3-004; [1] 2-3-004:076, 080; [1] 2-3-005:013; [1] 2-3-006:014
LAND JURISDICTION:	Hawai‘i Community Development Authority; Cody Properties, LLC; Kaka‘ako Associates, LLC; and the City and County of Honolulu
TEST EXCAVATIONS:	T-181 through T-185

SIHP #50-80-14-6856 is a previously-identified cultural resource that consists of the subsurface remnants of Kolowalu Fishpond (i.e., sediments, berms, and sandbar) that is located along Queen Street between Kamake‘e and Waimanu Streets within the East Kaka‘ako Geographic Zone (Figure 244). The SIHP #-6856 cultural resource boundary was established based on a combination of historic maps and previous archaeological data to include 7.17 acres. SIHP #-6856 was initially designated by Bell et al. (2006) during an archaeological inventory survey for the Victoria Ward Village Shops Project (Figure 245). Subsequently, SIHP #-6856 was identified by O’Hare et al. (2006) during archaeological monitoring for the Kaka‘ako Community Improvement District 10 Project and Thurman et al. (2009) during an archaeological inventory survey for the Queen Street Parks Project (see Figure 245).

Few oral traditions, legends, or other ethnographic information exist regarding Kolowalu Fishpond. Pukui et al. (1974:116-117) interpreted the name of Kolowalu, a ridge in Mānoa, as “eight creeping.” The Kolowalu Kai area may have been a *lele* (jump land) of the *ahupua‘a* of Mānoa and this interpretation of Kolowalu could apply to Kolowalu Fishpond. In general the location of Kolowalu Fishpond is depicted on historic maps as being 200 m inland from the pre-reclamation shoreline. This inland location suggests the fishpond was likely supplied by either fresh- or brackish-water. Kolowalu Fishpond is depicted on the 1884 S.E. Bishop map (Figure 248) and on the 1897 M. D. Monsarrat map (Figure 246) which indicates that Kolowalu Fishpond was part of Land Commission Grant 3194. Grant 3194 was awarded to Kalae and Ka‘aua, and contained many fishponds collectively called Kolowalu. Ka‘aua was awarded the land in 1878, and may have had ties with the land from the early- to mid-nineteenth century (Thurman et al. 2009). Depictions of Kolowalu Fishpond on historic maps may indicate that the pond was constructed during the late pre-Contact to early post-Contact era; however, with no ethnographic or historical accounts of the construction or use of Kolowalu Fishpond, its age and origin remain unclear.

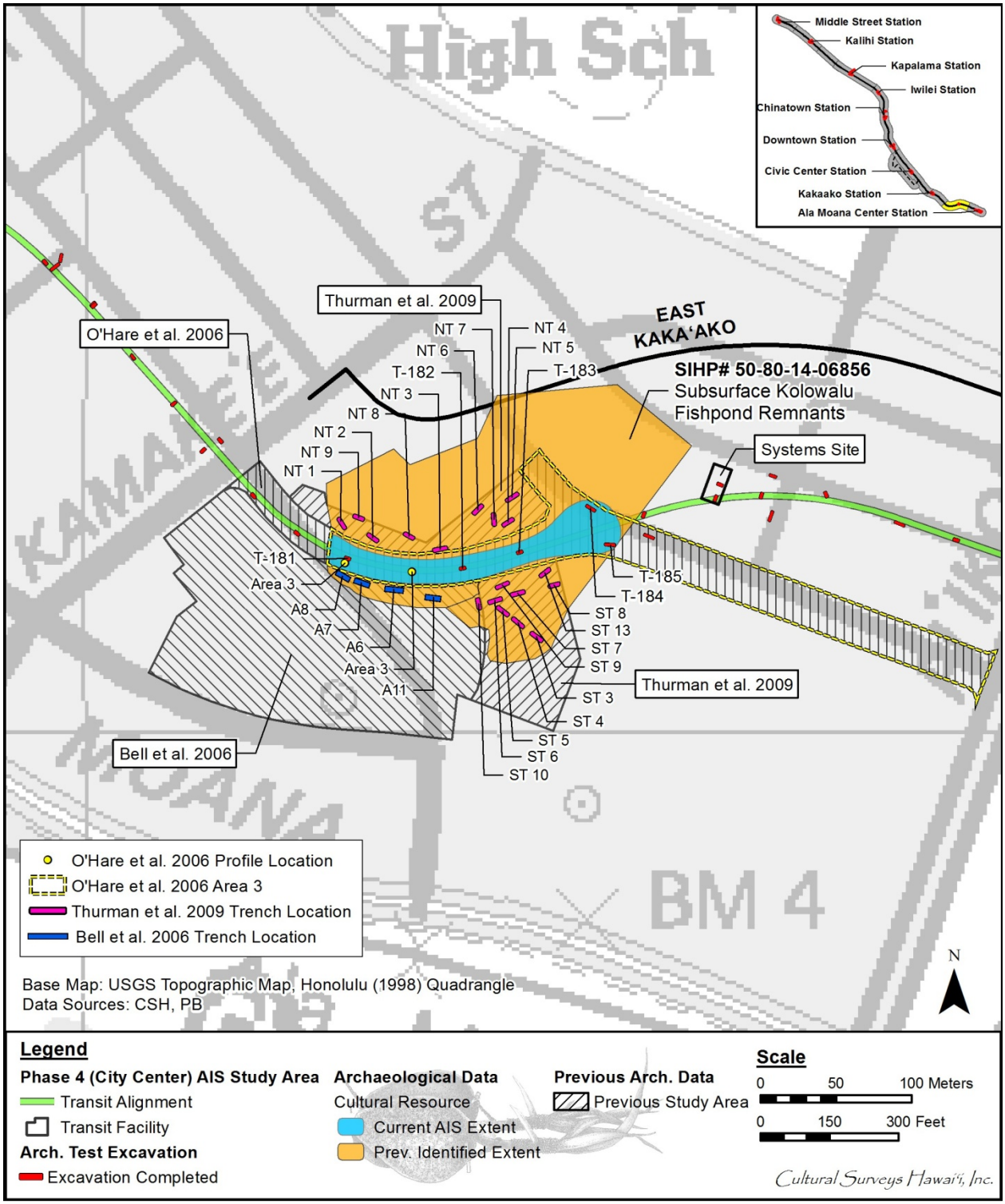

Figure 244. Location and extent of SIHP #-6856, Kolowalu Fishpond, with locations of current AIS excavations T-181 through T-185 along the East Kaka‘ako Zone corridor (base map: 1998 U.S. Geological Survey topographic map, Honolulu Quadrangle)

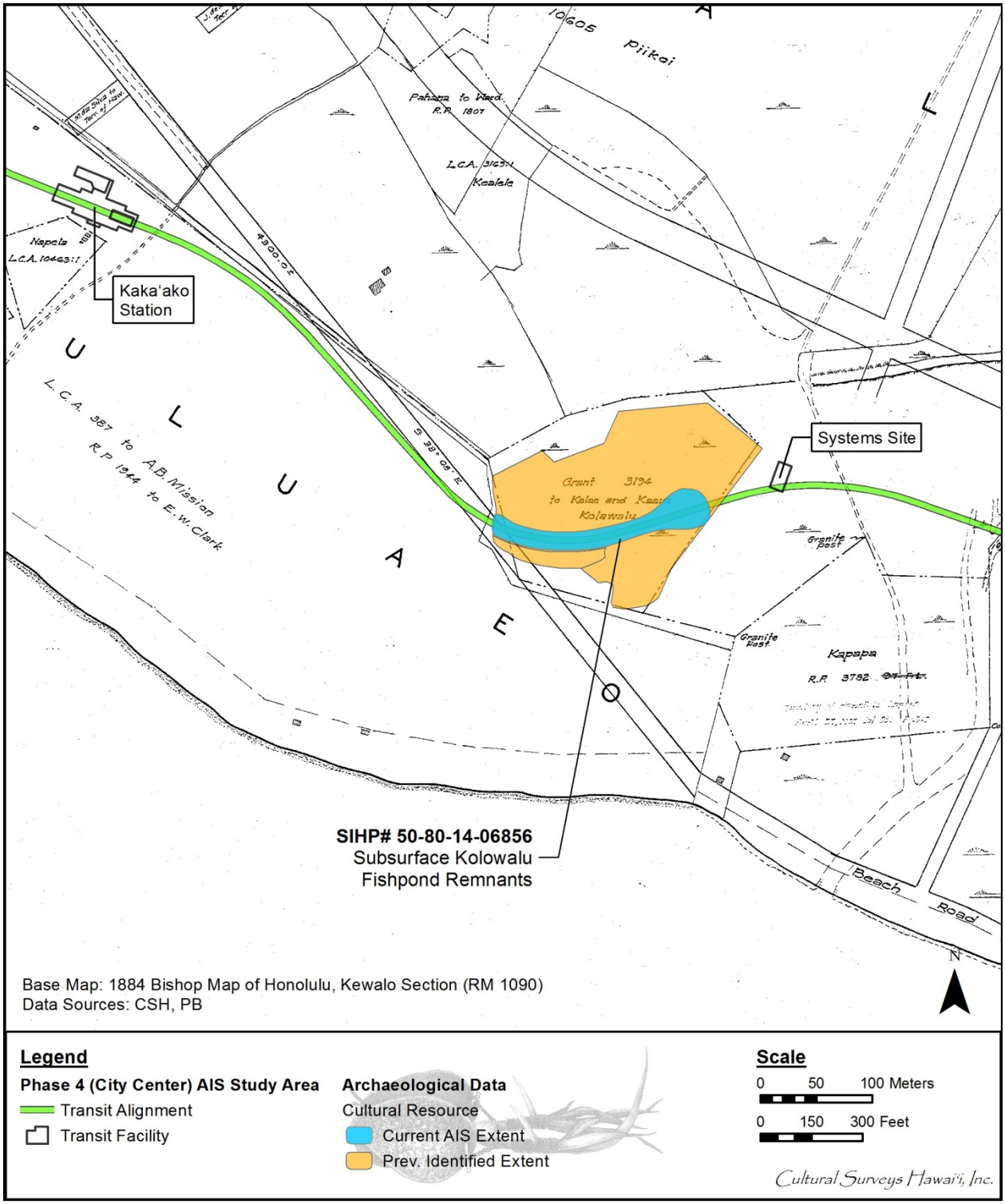

Figure 245. 1884 Map of Honolulu and Kewalo by S.E. Bishop (Reg. Map 1090) showing the general location of Kolowalu Fishpond

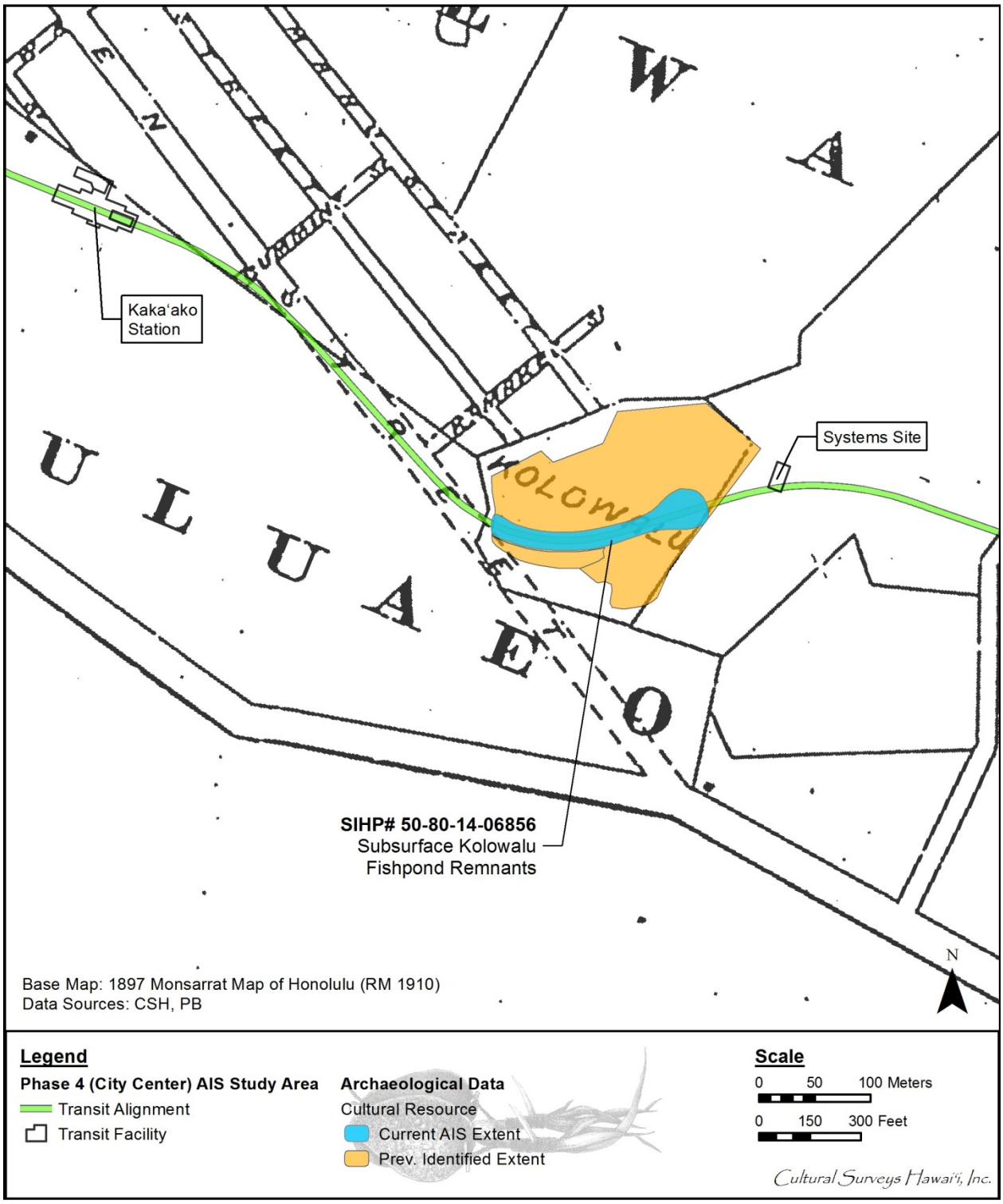

Figure 246. 1897 Map of Honolulu by M. D. Monsarrat (Reg. Map 1910) showing the general location of Kolowalu Fishpond

Kolowalu fishpond remained extant through the early twentieth century and is depicted in a 1927 aerial photograph (Figure 248). Kolowalu Fishpond was not completely filled in until the late 1920s or early 1930s as part of the Waikīkī Reclamation Project (O'Hare et al. 2006).

Kolowalu Fishpond sediments still remain beneath fill deposits and were initially documented during an archaeological study conducted by Bell et al. (2006). O'Hare et al. (2006) and Thurman et al. (2009) subsequently also documented additional exposures of fishpond sediments. In general, the stratigraphy in these previous studies indicates relatively thick historic fill deposits overlie the natural pond sediments which were deposited atop either the coral shelf or lagoonal sediments. Thurman et al. (2009:172) describes the stratigraphic sequence within their project area as follows:

> The stratigraphic sequence across both the mauka and makai sections of the proposed park included a minimum of one (1) m of fill everywhere tested. The fill material ranged from terrestrial mixed soils with some historic era artifacts to primarily crushed coral fill. Below the fill layers was generally a thin organic A horizon and pond sediments.

The natural fishpond deposits generally consisted of sand, clay, and sandy clay sediments that were usually overlying the Pleistocene coral shelf. These deposits were observed below historic fill deposits, at an average depth of 1.10 to 2.17 mbs. Thurman et al. (2009:96) documented a thin A-horizon associated with the "backshore marsh or pond sediments associated with SIHP 50-80-14-6856" fishpond sediments. This A-horizon consisted of a peat layer that contained land snails and decomposing organic material. Documented components of the Kolowalu Fishpond included an elevated berm (Stratum VII) during the Bell et al. (2006) AIS, and a natural sandbar (Stratum II and III) identified during the O'Hare et al. (2006) study.

Various fill strata overlie the natural pond sediments. Bell et al. (2006) documented up to five fill strata ranging in depth from 0.5 to 1.5 mbs. Fill material included crushed coral, terrigenous clays and clay loams, hydraulic fill, asphalt layers with gravel base courses, and historic trash fills (Bell et al. 2006). O'Hare et al. (2006) identified a total of nine fill strata (Ia-Ii) that contained historic material dating to the 1920s and 1930s. Thurman et al. (2009) indicated overlying fills generally consisted of construction fill, burnt and unburnt historic trash layers, crushed coral, and hydraulic fills.

During testing for the Victoria Ward Village Shops Project archaeological inventory survey, Bell et al. (2006) identified Kolowalu Fishpond sediments within Trench A-6 (Figure 249). They also identified a berm related to the former pond. Within Trench A-6, the Kolowalu Fishpond sediments were designated as Stratum VI (Figure 249 through Figure 251 and Table 45). The fishpond sediments ranged in depth from 1.55 mbs to 1.70 mbs and were described as "gleyed, greenish gray, sandy clay" underlying fill sediments (Bell et al. 2006:269). The adjacent Stratum VII, was described as a natural, light gray sandy clay that appeared to form a berm or boundary of the pond sediment.

O'Hare et al. (2006) identified Kolowalu Fishpond sediments during archaeological monitoring for the Kaka‘ako Community Improvement District 10 Project. Remnants of the fishpond sediments were documented in Area 3, the eastern portion of their project area (Figure 252). O'Hare et al. (2006:64) describe the stratigraphy in Area 3 as follows:

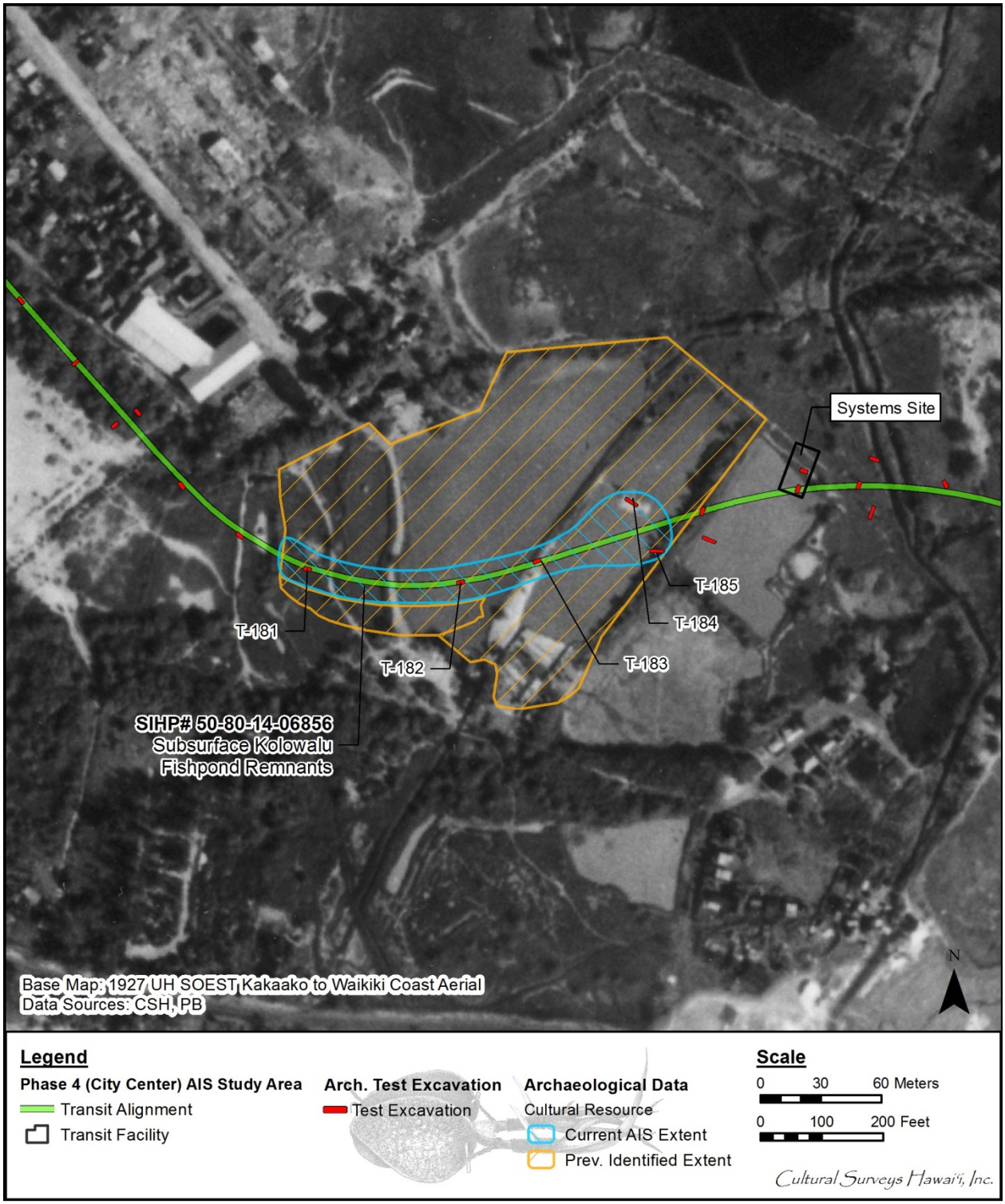

Figure 247. Portion of a 1927 aerial photograph (source: UH SOEST) depicting Kolowalu Fishpond (SIHP #-6856)

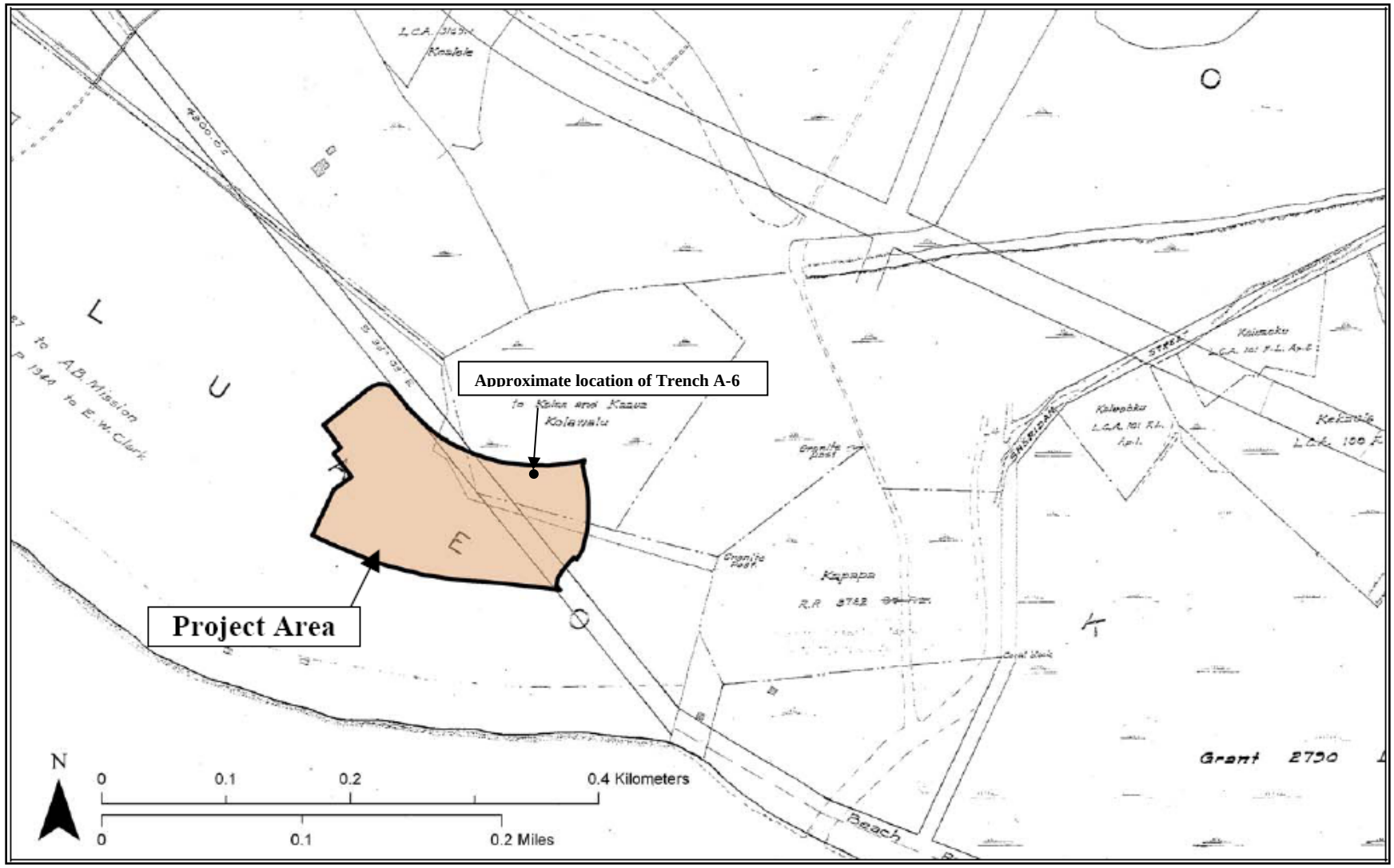

Figure 248. 1884 map of Honolulu by S.E. Bishop showing the Bell et al. (2006) AIS project area and approximate location of their Trench A-6; see Figure 244 for locations of previous studies

Figure 249. Trench A-6 southern sidewall showing the relationship between the pond sediment (VI) and the overlying fill sediments (I-V), and the underlying lagoonal sediment (VII) (adapted from Bell et al. 2006:69)

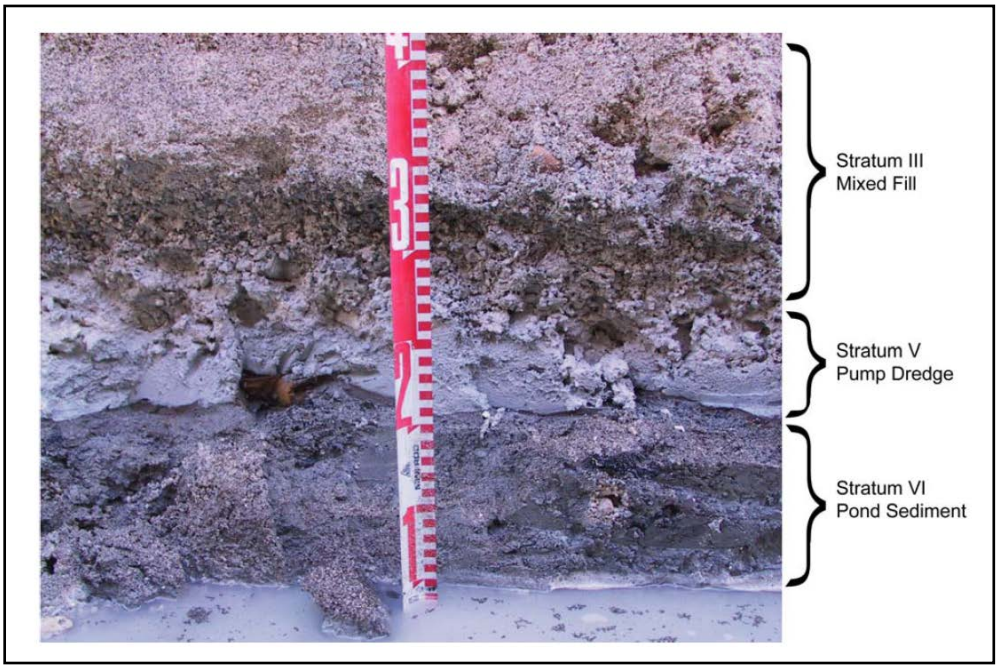

Figure 250. Close-up of the lower strata observed within Trench A-6 (adapted from Bell et al. 2006:70)

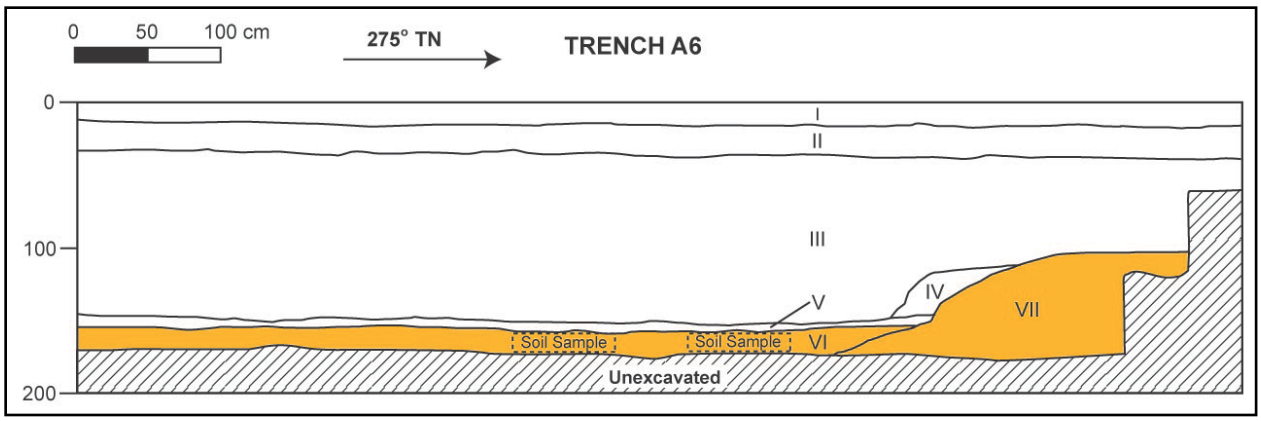

Figure 251. Profile of Trench A-6, south wall, showing Kolowalu fishpond sediments (Stratum VI) and natural lagoonal berm (Stratum VII) (adapted from Bell et al. 2006:68)

Table 45. Trench A6 Stratigraphic Description (adapted from Bell et al. 2006)

Stratum	Depth (cmbs)	Description
I	0-15	Asphalt
II	15-35	Fill Horizon; 10 YR 6/1, gray; gravel, structureless, loose dry consistency; non-plastic; no cementation; abrupt smooth lower boundary. This is a gravel base course for the asphalt.
III	35-100/150	Fill Horizon; 10 YR 7/3, very pale brown; very coarse, sand; structureless, loose dry consistency; non-plastic; no cementation; clear wavy lower boundary. 75% coral cobble and pebble. A piece of glazed ceramic found near the top of this layer.
IV	110-145	Fill Horizon; 10 YR 7/2, light gray; fine to medium, sand; structureless, loose moist consistency; non-plastic; no cementation; abrupt irregular lower boundary. Layer grades from medium sand at top to fine sand at bottom.
V	150-155	Fill Horizon; 10 YR 6/1, gray; clay; structureless, very sticky wet consistency; plastic; no cementation; very abrupt smooth lower boundary. This is hydraulic pump dredge sediment.
VI	155-170	Pond sediment; Gley 1 5/1, greenish gray; sandy clay; structureless, very friable moist consistency; very plastic; no cementation; very abrupt wavy lower boundary. Overlies natural berm (Stratum VII). Pond was capped by 1920/1930s pump dredge (Stratum V) deposited directly atop of coral shelf. Two sediment samples were collected from this stratum; component of SIHP # -6856
VII	100-170	Lagoonal sediment; 10 YR 7/2, light gray; sandy clay; structureless, loose moist consistency; sticky wet consistency; plastic; no cementation; this stratum sits directly atop of coral shelf, Marine deposited lagoonal sediment; may be a natural berm

> In this area, fill materials are found all of the way down to the top of a stratum of gleyed clay (Stratum V), which formed on the bottom of the pond, or down to the coral bedrock (Stratum VI).

Kolowalu Fishpond sediments (Stratum V) ranged from 1.21 mbs to 1.99 mbs (see Figure 253 and Table 46). They were observed beneath fill sediments and were described as being a "gleyed or clay layer, which represents the original pre-Contact to early post-Contact marshy environment of the area" (O'Hare et al 2006:68).

In addition to Kolowalu Fishpond sediments, O'Hare et al. (2006) also documented 28 burials (SIHP #50-80-14-6658) recovered near the southwestern edge of the Kolowalu Fishpond parcel, and two previously-disturbed burials (SIHP #50-80-14-6659) from fill deposits within the former fishpond footprint. SIHP #-6658 consists of a discrete cemetery which included extended, flexed and semi-flexed burial positions of both previously-disturbed and in situ burials. The 28 burials (minimum number of individuals [MNI] = 28 individuals) were encountered in sand deposits (Stratum II and III) identified as part of a natural sandbar that bordered the edge of Kolowalu Fishpond (see Figure 254). Collected grave goods dated from 1820 to 1890 and the cemetery was believed to have been used from the early- to late-nineteenth century but not after the turn of the century (O'Hare et al. 2006). SIHP#-6659 consists of two previously-disturbed burials, one of which (Burial 20) was located in fill material deposited within the former Kolowalu Fishpond footprint. The nature and age of the burials could not be determined.

Thurman et al. (2009) identified Kolowalu Fishpond sediments during subsurface testing for the Queen Street Parks Project archaeological inventory survey. A total of 29 test units were excavated, the majority of which were within the known footprint of the Kolowalu Fishpond (see Figure 255). Test Unit 1 (Strata III-V) and Test Unit 3 (Strata III-IV) were identified as containing natural pond sediments (see Figure 256 to Figure 259, and Table 47 and Table 48). Although they do not specify whether the remaining test units clearly contained pond sediments, stratigraphic descriptions indicate that natural sediments observed in other test units generally consisted of similar lagoonal or marine deposits (Thurman et al. 2009). The locations of the test units suggest these sediments are possibly associated with Kolowalu Fishpond.

Subsurface testing for the current City Center AIS included five test excavations within the former footprint of Kolowalu Fishpond (T-181 through T-185). In general, observed stratigraphy in these test excavations consisted of thick fill strata (Ia-Id) overlying natural sediment (Stratum II) (see Figure 260 to Figure 268, and Table 49 to Table 53). The natural sediment (Stratum II) consisted of greenish and bluish gray sandy clay, loamy sand, and silty clay sediments. Within T-183 the natural sediment was subdivided into Stratum IIa and IIb, based primarily on color and textural differences. Natural sediments within T-181 contained lenses of peat material, and abundant snail shells were present within T-183 and T-185. Overall, these natural pond sediments within the former footprint of Kolowalu Fishpond were observed between 1.10 mbs and 1.70 mbs.

Bulk sediment samples were collected from T-181, T-182, and T-184. The results yielded only non-cultural shell and organic material.

Pollen analysis was conducted for natural sediment (Stratum II) samples collected from T-181 and T-184. The T-181 sample (1.20-1.30 mbs) yielded several alien species including *Casuarina*,

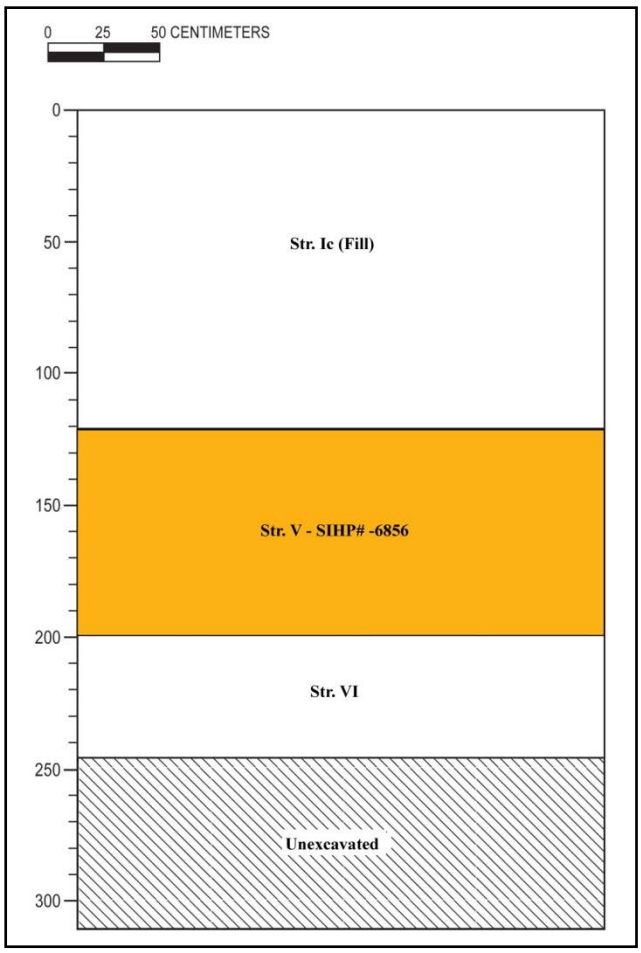

Figure 252. Area 3 profile showing Kolowalu Fishpond sediments (SIHP # -6856) below thick fills (Stratum Ic) and above coral shelf (Stratum VI) (adapted O'Hare et al. (2006:79)

Table 46. Area 3 Stratigraphic Description (adapted from O'Hare et al. 2006)

Stratum	Depth (cmbs)	Description
Ic	0-121	Fill; very pale brown (10 YR 8/2) medium to coarse sand with 80% crushed coral rubble; single grain structure, loose when moist and dry, non-plastic.
V	121-199	Light greenish gray (5G 7/1) gleyed clay; weak, fine, subangular blocky structure; very sticky when wet, very plastic; Kolowalu Fishpond sediments; component of SIHP # -6856
VI	199-245+	Coral shelf

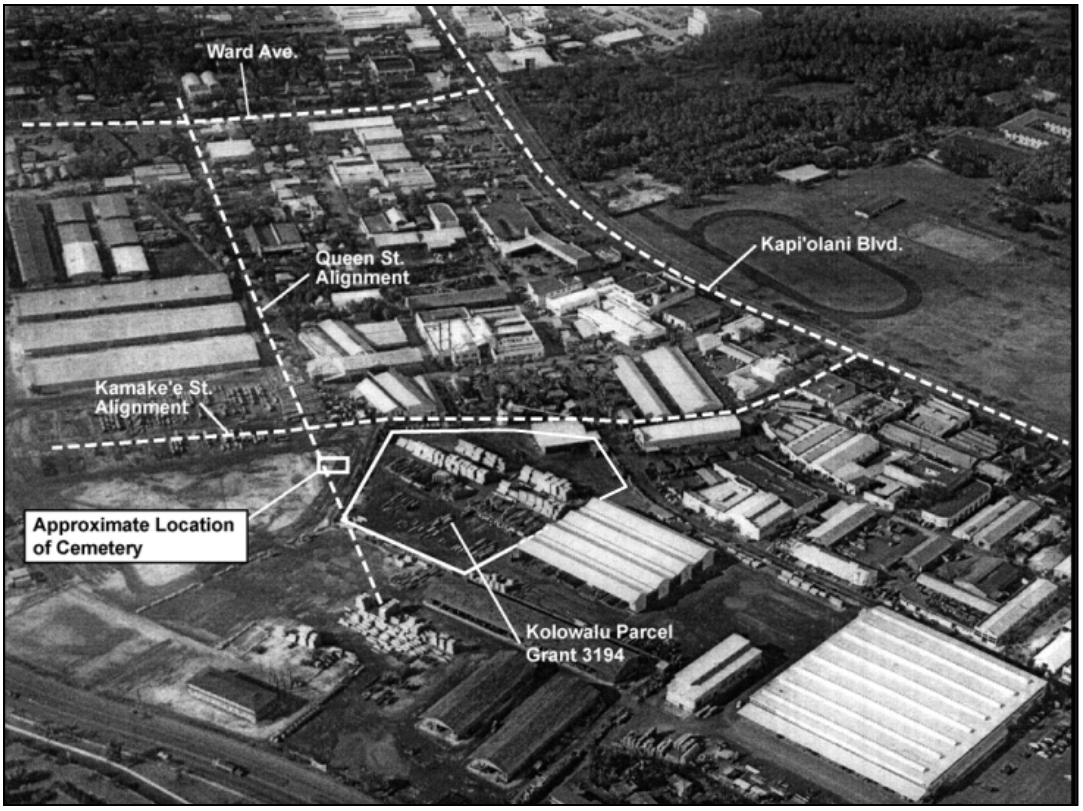

Figure 253. 1949 Aerial photograph showing the location of SIHP #-6658 (cemetery) in relation to the Kolowalu Parcel (O’Hare et al. 2006:90)

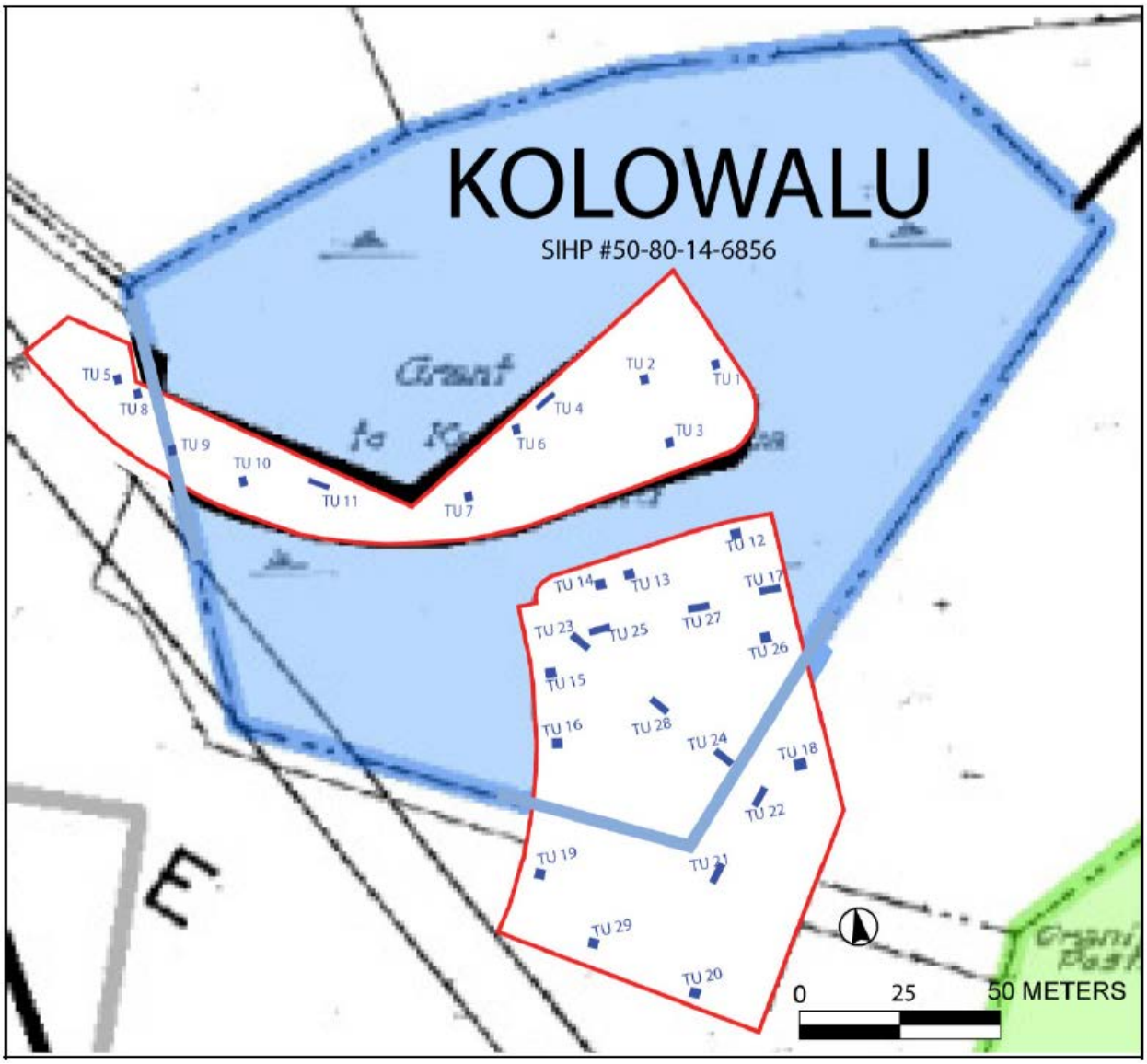

Figure 254. Thurman et al.(2009:100) map showing locations for the 29 test units within or near the former footprint of Kolowalu Fishpond (SIHP # -6856)

Figure 255. Thurman et al. (2009:101) Test Unit 1 sidewall, showing fill sediments overlying buried A-horizon (Stratum II) and Kolowalu Fishpond natural sediments (SIHP # -6856), Strata III-V; see Figure 256 for profile

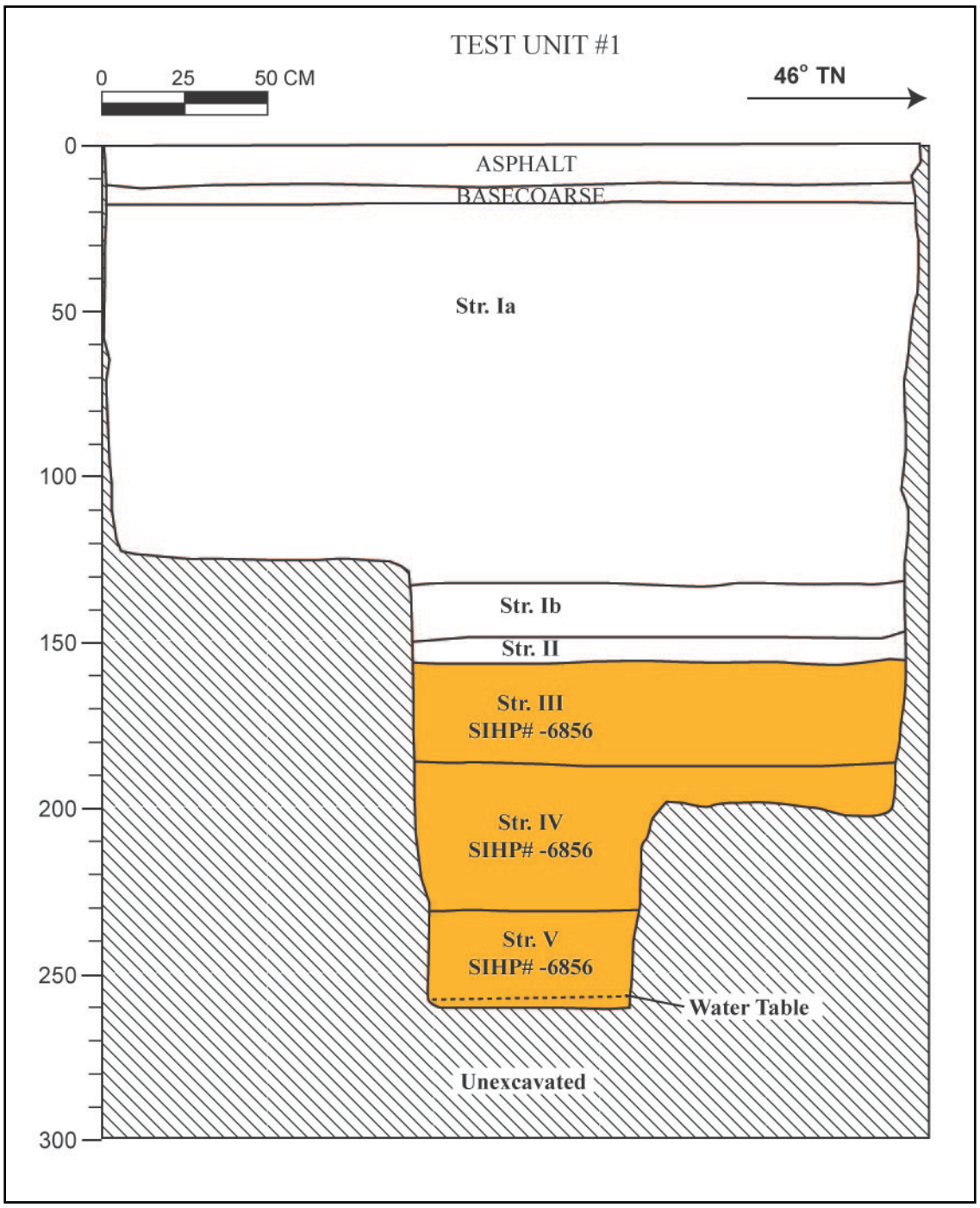

Figure 256. Thurman et al. (2009:102; color not in original)Test Unit 1 northwest wall profile, showing Kolowalu Fishpond sediments (SIHP # -6856), Strata III-V

Table 47. Stratigraphic Description of Test Unit 1 (adapted from Thurman et al. 2009)

Stratum	Depth (cmbs)	Description of Sediment
Ia	17-133	Fill; 10 YR 7/4 very pale brown; crushed coral; structurless; dry loose consistency; non plastic; no cementation; marine origin; abrupt smooth lower boundary; crushed coral fill
Ib	132-148	Fill; 10 YR 7/1 light gray; clay loam; strong fine granular structure; wet very sticky consistency; very plastic; no cementation; marine origin; abrupt smooth lower boundary; pump dredge
II	147-155	Buried A-Horizon; 10 YR 4/2 dark grayish brown; clay loam; moderate fine crumb structure; wet sticky consistency; plastic; no cementation; terrestrial origin; abrupt smooth lower boundary; natural land surface, contains land snail shells
III	155-187	Natural Pond Sediment; Gley 2 5/10B bluish gray; sandy clay; moderate medium granular structure; wet sticky consistency; slightly plastic; no cementation; mixed origin; abrupt smooth lower boundary; Kolowalu Fishpond sediment; component of SIHP # -6856
IV	187-206	Natural Pond Sediment; Gley 1 5/N gray; sand; moderate fine single grain; wet non-sticky; no plastic; no cementation; marine origin; abrupt smooth lower boundary; Kolowalu Fishpond sediment; component of SIHP # -6856
V	206-267 BOE	Natural Pond Sediment; Gley 1 4/10Y dark greenish gray; gravely sand; strong fine single grain matrix; moist loose consistency; non plastic; weak cementation; natural pond sediment; water table at 267 cmbs; Kolowalu Fishpond sediment; component of SIHP # -6856

Figure 257. Thurman et al. (2009:106; labels not in original) Test Unit 3, southwest wall, showing Kolowalu Fishpond sediments (SIHP # -6856), Strata III and IV below thick fills (Ia-Ic) and buried A-horizon (II); see Figure 258for profile

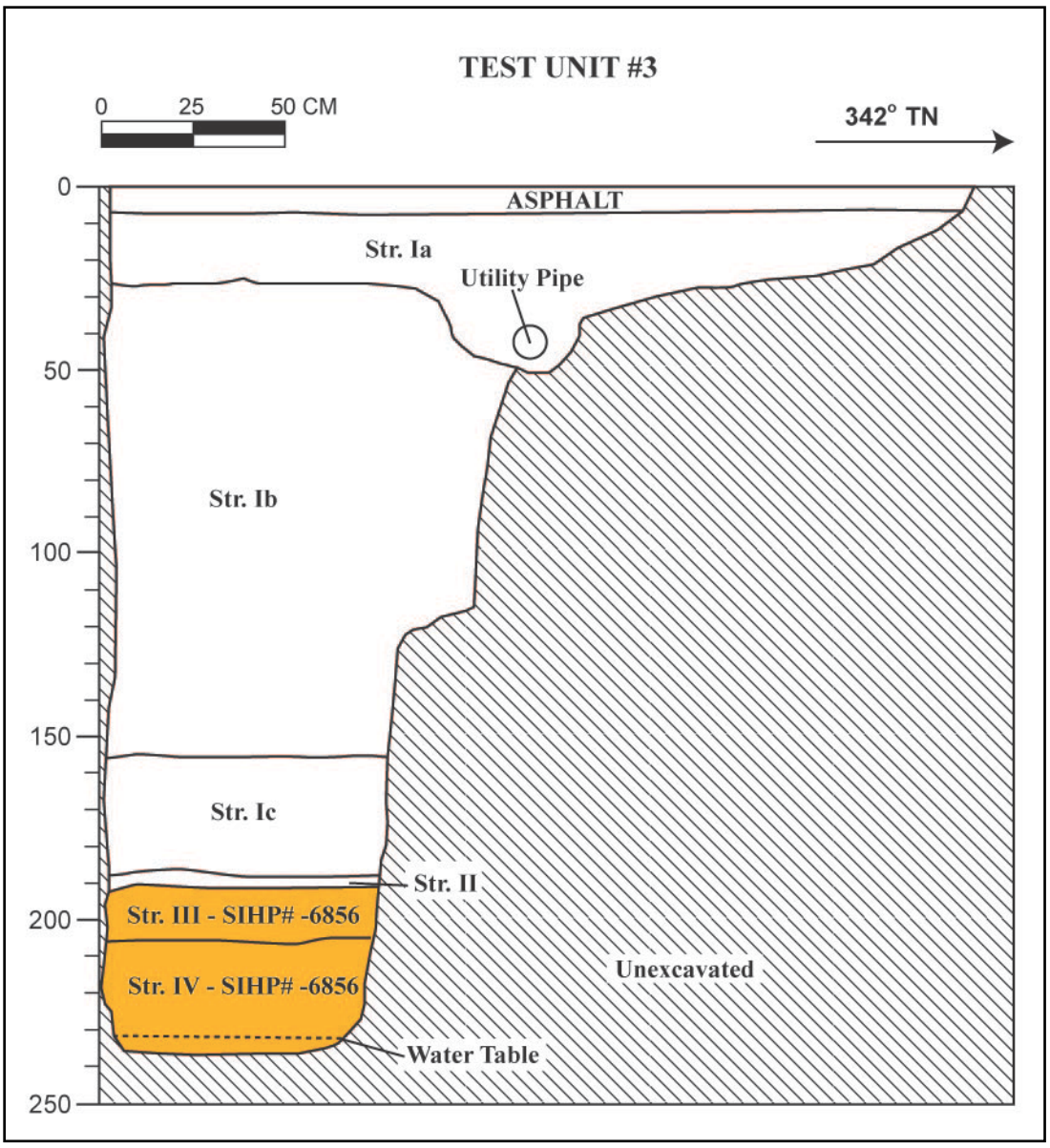

Figure 258. Thurman et al. (2009:107) Test Unit 3, southwest wall profile, showing Kolowalu Fishpond sediments (SIHP # -6856), Strata III and IV

Table 48. Stratigraphic Description of Test Unit 3 (adapted from Thurman et al. 2009)

Stratum	Depth (cmbs)	Description of Sediment
Ia	8-52	Fill; 10 YR 3/3 dark brown; silty clay loam; moderate fine crumb structure; dry loose consistency; non plastic; no cementation; terrestrial origin; abrupt smooth lower boundary; construction fill associated with utility pipe
Ib	27-156	Fill; 10 YR 8/3 very pale brown; very coarse sand and crushed coral; structurless; dry loose consistency; non plastic; no cementation; marine origin; abrupt smooth lower boundary; crushed coral fill
Ic	156-188	Fill; 10 YR 7/1 light gray; sandy clay; moderate fine crumb structure; wet very sticky consistency; plastic; marine origin; abrupt smooth lower boundary; pump dredge
II	188-192	Buried A-Horizon; 10 YR 4/2 dark grayish brown; clay loam; moderate fine crumb structure; moist friable, wet sticky consistency; plastic; no cementation; terrestrial origin; abrupt smooth lower boundary; natural land surface
III	192-206	Natural Pond Sediment; Gley 2 4/5BG dark greenish gray; sandy clay; structurless; dry loose, wet non-sticky consistency; non plastic; no cementation; marine origin; abrupt smooth lower boundary; Kolowalu Fishpond sediment; component of SIHP # -6856
IV	206-Coral Shelf	Natural Pond Sediment; Gley 1 5/N gray; sand; structurless; wet non-sticky consistency; non plastic; no cementation; marine origin; natural pond sediment above gravely weakly cemented coral shelf, water table at 233 cmbs; Kolowalu Fishpond sediment; component of SIHP #-6856

Figure 259. T-181 south profile wall, view to southwest

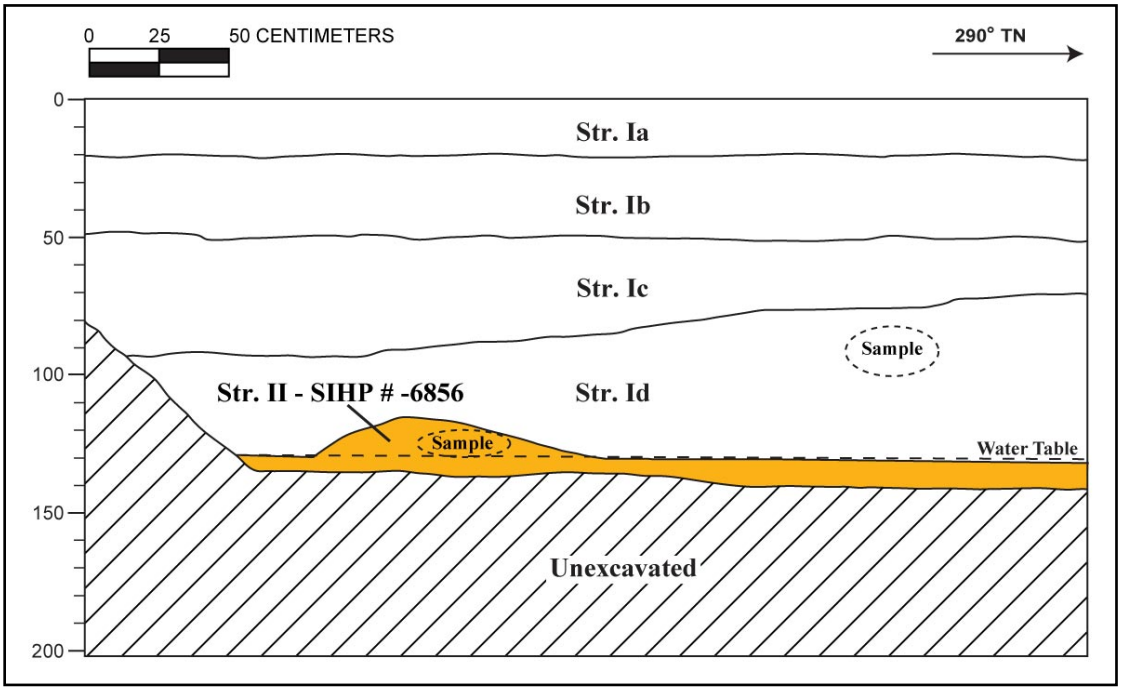

Figure 260. T-181 south wall profile, showing Kolowalu Fishpond sediments (SIHP # -6856), Stratum II

Table 49. T-181 Stratigraphic Description

Stratum	Depth (cmbs)	Description
Ia	0–21	Asphalt
Ib	21–50	Fill; 10 YR 4/4 (dark yellowish brown); extremely gravelly clay loam; structureless, single-grain; dry, loose consistency; non-plastic; terrigenous; very abrupt lower boundary; base course used a cushion material for overlying street surface, basalt gravel and coral gravel and cobble
Ic	50–95	Fill; 10 YR 8/3 (very pale brown); very coarse sand to cobbles; structureless, single-grain; moist, loose consistency; non-plastic; marine origin; abrupt, wavy lower boundary; crushed coral used as fill to elevate former land surface
Id	70–130	Fill; 2.5 Y 7/2 (light gray) with many, coarse, sandy clay mottles of 10YR 7/3 (very pale brown); structureless, massive; moist, firm to very firm consistency; plastic; mixed origin; clear, wavy lower boundary; locally-procured sediment from underlying wetland environment
II	115–140 (BOE)	Natural; GLEY 1 6/10 Y (greenish gray) with common, fine to coarse mottles of GLEY 1 7/1 (light greenish gray); sandy clay; structureless, massive; moist, very friable consistency; plastic; terrestrial origin; discontinuous lower boundary; common, very fine roots; contained lenses of peat material; Kolowalu Fishpond sediment; component of SIHP #-6856

Figure 261. T-182 south profile wall, view to southwest

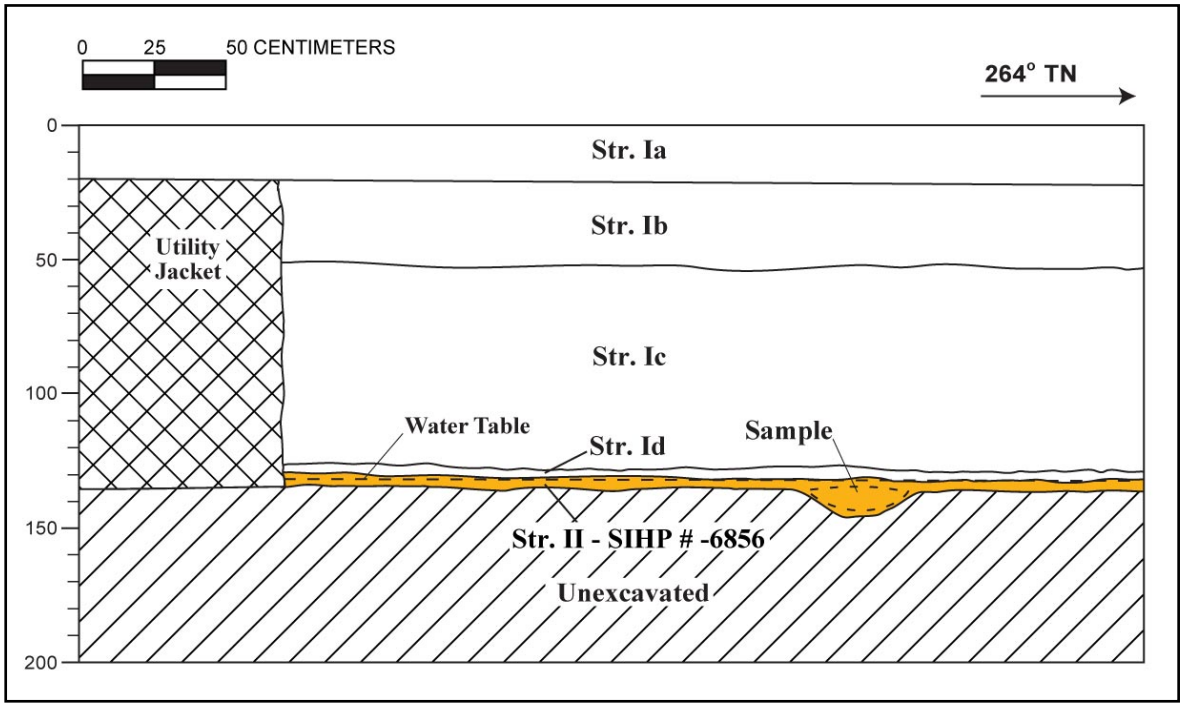

Figure 262. T-182 north wall profile, showing Kolowalu Fishpond sediments (SIHP # -6856), Stratum II

Table 50. T-182 Stratigraphic Description

Stratum	Depth (cmbs)	Description
Ia	0–20	Asphalt
Ib	20–50	Fill; 10 YR 3/4 (very yellowish brown); very gravelly sandy loam; weak, very fine, crumb structure; dry, weakly coherent consistency; terrigenous origin; clear, smooth lower boundary; concrete jacket at E end; basalt base course
Ic	50–126	Fill; 10 YR 8/3 (very pale brown); stony sand; structureless, single-grain; moist-loose consistency; non-plastic; marine origin; diffuse, smooth lower boundary; crushed coral fill
Id	126–130	Fill; 10 YR 8/2 (very pale brown); fine sand; structureless, single-grain; non-sticky consistency; non-plastic; marine origin; clear lower boundary; appears to be fine-grain material that has settled from the overlying stony crushed coral sand (Ic)
II	129–138 (BOE)	Natural; GLEY 2 6/1 (bluish gray); clay; structureless, massive; wet, slightly sticky consistency; slightly plastic; terrestrial origin; lower boundary not visible; natural sediment; Kolowalu Fishpond sediment; component of SIHP #-6856

Figure 263. T-183 south profile wall, view to southwest

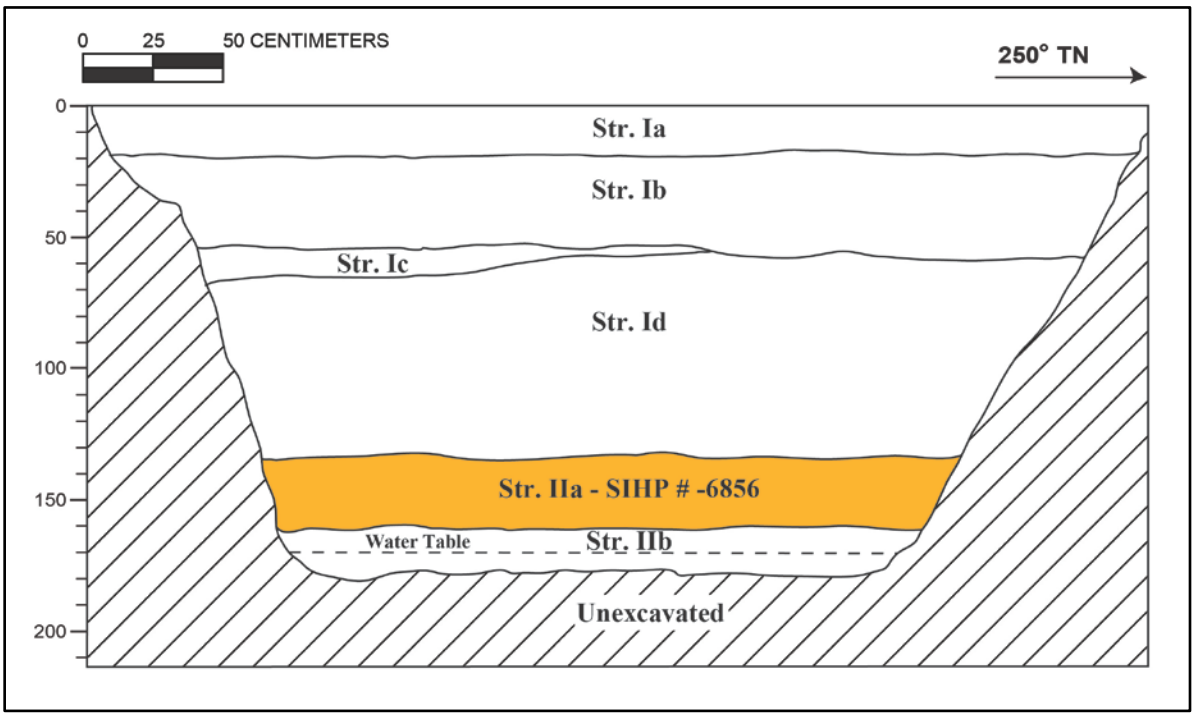

Figure 264. T-183 south wall profile, showing Kolowalu Fishpond sediments (SIHP # -6856) Stratum IIa

Table 51. T-183 Stratigraphic Description

Stratum	Depth (cmbs)	Description
Ia	0–20	Asphalt
Ib	20–58	Fill; 10 YR 6/1 (gray); extremely gravelly sandy silt single-grain structure; moist, loose consistency; non-plastic; terrigenous origin; very abrupt, smoother lower boundary, basalt gravel base course
Ic	52–70	Fill; 10 YR 4/4 (dark yellow brown) with many coarse mottles of 10 YR 8/1 (white); very gravelly silt loam; weak, fine, crumb structure; moist, friable consistency; non-plastic; mixed origin; very abrupt, broken/discontinuous lower boundary; with crushed coral in matrix
Id	58–135	Fill; 2.5 Y 7/3 (pale yellow); sandy clay; structureless, massive; moist, very firm consistency; plastic; mixed origin; abrupt, smooth lower boundary; sandy clay hydraulic fill material
IIa	130–165	Natural; GLEY 2 6/1 (greenish gray); clay; structureless, massive; moist, very firm consistency; plastic; terrestrial origin; diffuse, smooth lower boundary; Kewalo Fishpond sediment; component of SIHP #-6856
IIb	165–180 (BOE)	Natural; GLEY 2 5/1 (greenish gray); sand; structureless, single-grain; wet, non-sticky consistency; non-plastic; marine origin; lower boundary not visible; natural marine lagoonal sand

Figure 265. T-184 northeast wall profile, view to north

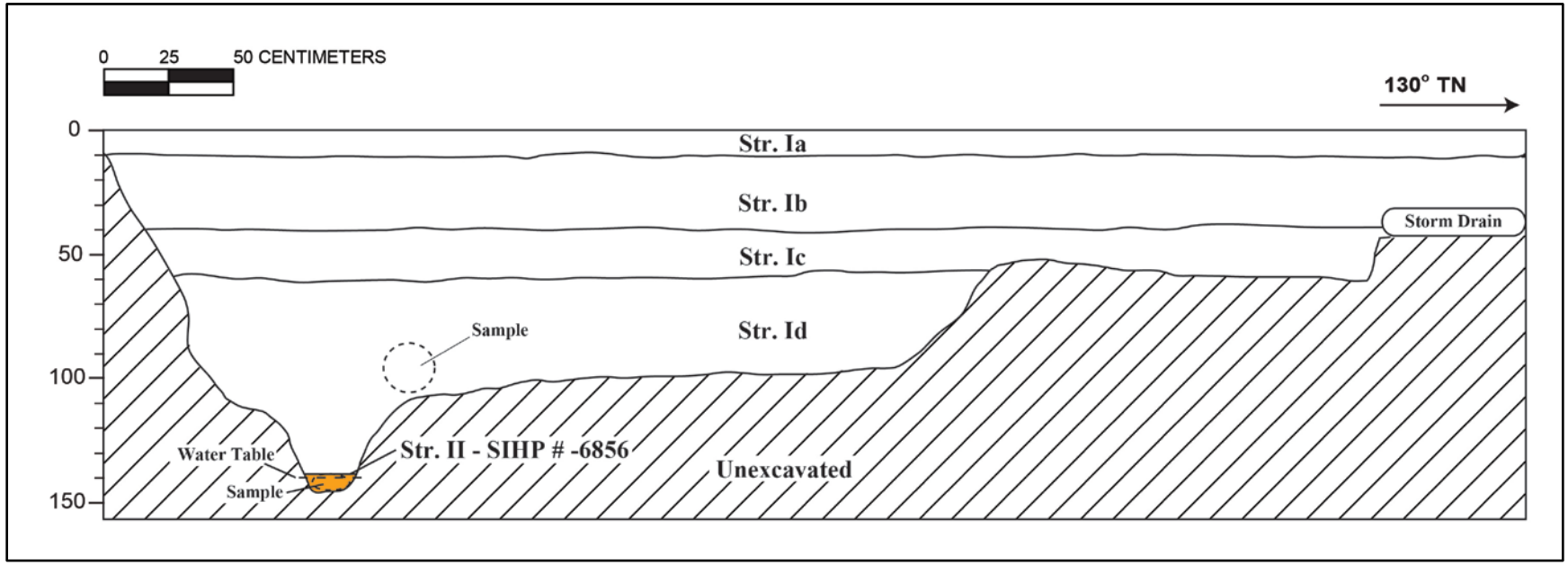

Figure 266. T-184 northeast wall profile, showing Kolowalu Fishpond sediments (SIHP # -6856), Stratum II

Table 52. T-184 Stratigraphic Description

Stratum	Depth (cmbs)	Description
Ia	0–10	Asphalt
Ib	10–40	Fill; 10 YR 6/4 (yellowish brown); very gravelly sandy loam; weak, medium structure; moist, friable consistency; non-plastic; terrigenous origin; abrupt, smooth, lower boundary; common, fine roots; gravel base course
Ic	40–60	Fill; 10 YR 8/3 (very pale brown); very gravelly cobbly sand; structureless, single-grain; moist, loose, non-sticky, weak consistency; non-plastic; mixed origin; abrupt, smooth lower boundary; few, coarse roots; crushed coral
Id	60–139	Fill; 2.5 Y 6/2 (light brownish gray); sandy clay; blocky structure; moist, friable consistency; plastic; few, coarse roots; abrupt, smooth lower boundary;
II	139–147 (BOE)	Natural; GLEY 2 6/1 (bluish gray); clay; medium structure; wet, sticky consistency; plastic; terrestrial origin; abrupt, smooth lower boundary; natural sediment; Kolowalu Fishpond sediment; component of SIHP #-6856

Figure 267. Photograph of T-185 north profile wall, view to northwest

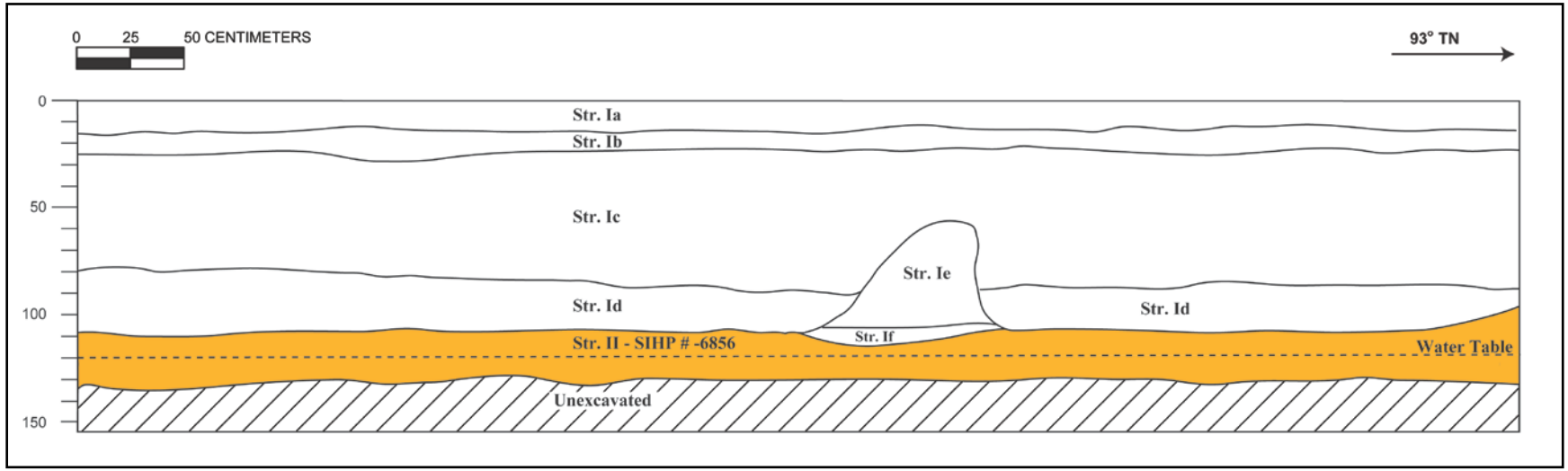

Figure 268. T-185 north wall profile, showing Kolowalu Fishpond sediments (SIHP # -6856), Stratum II

Table 53. Stratigraphic description for north profile in T-185

Stratum	Depth (cmbs)	Description
Ia	6–15	Asphalt
Ib	15–25	Fill; 10 YR 5/1 (gray); very gravelly loam; structureless, single-grain; moist, loose consistency; non-plastic, terrigenous origin; abrupt, smooth lower boundary; gravel base course
Ic	25–90	Fill; 10 YR 5/2; (grayish brown); very gravelly loam; structureless, single-grain; moist, loose consistency; non-plastic, terrigenous origin; abrupt, smooth lower boundary
Id	80–110	Fill; 10 YR 5/1; (gray); very gravelly loam; structureless, single-grain; moist, very friable consistency; non-plastic, terrigenous origin; abrupt, smooth lower boundary; fill inside of filter fabric
Ie	55–110	Fill; 10 YR 6/2 (light brownish gray); silty loam; weak, fine, crumb structure; moist, firm consistency; slightly plastic, mixed origin; abrupt, broken/discontinuous lower boundary
If	100–117	Fill; 10 YR 6/4 (light yellowish brown); sandy clay loam; weak, fine blocky structure; moist, friable, non-sticky consistency; non-plastic; mixed origin; clear, broken discontinuous lower boundary; locally-procured wetland sediment used as fill material
II	110–135	Natural; 10 YR 4/1 (dark gray); gravelly sandy clay; weak, fine, blocky structure; moist, firm consistency; slightly plastic; mixed origin; lower boundary not visible; contained freshwater snail shell; Kolowalu Fishpond sediment; component of SIHP #-6856

Leucaena, and *Prosopis* pollen. The pollen record was dominated by Myrsine pollen suggesting open water and wind transport of pollen from *kōlea* trees growing nearby. Local vegetation appears to have included *niu, ‘aiea, loulu*, and probably *‘aheahea*. The T-184 sample (1.39 - 1.47 mbs) was dominated by *Cyperaceae* pollen. *Prosopis* (*kiawe*) pollen also was noted along with a member of the sumac family such as mango, *niu, kōlea*, probably *‘aheahea, ‘ilima, hinahina*, and *kokolau*. The presence of a large quantity of charcoal in the sample suggests burning of agricultural stubble or weeds. The pollen record also identified Foraminifera (marine protozoans) in the T-181 samples, which is consistent with the presence of a pond.

The natural Stratum II sediments within T-181 through T-185 in the City Center AIS study area are identified as buried Kolowalu Fishpond sediments and are designated as components of SIHP # 50-80-14-6856. The current findings are combined into the previously-identified cultural resource designated SIHP # 50-80-14-6856 based on location within the former Kolowalu Fishpond footprint and similarities in the sediment depositional sequence, texture, color, and content. The 1884 map by S.E. Bishop and the 1897 map by M. D. Monsarrat confirm that T-181 through T-185 are located within the former Kolowalu Fishpond footprint (see Figure 246 and Figure 247). The depositional sequence observed during current and prior studies consists of buried Kolowalu Fishpond sediments located at or near the water table, as having developed atop marine sediments and/or the coral shelf, and being capped by numerous historic and/or modern fill strata. The Kolowalu Fishpond sediments vary between studies and include greenish and bluish gray sandy clay, loamy sand, and silty clay sediments.

SIHP # 50-80-14-6856 consists of buried Kolowalu Fishpond sediments representative of an aquacultural locality. While the precise age and origin of Kolowalu Fishpond is unclear, the pond may have been constructed during pre-Contact and/or early post-Contact times, and remained in use into the early twentieth century. Historic maps and photographs indicate Kolowalu Fishpond was constructed prior to the mid-nineteenth century. Buried Kolowalu Fishpond sediments were initially identified by Bell et al. (2006) and subsequently by O’Hare et al. (2006) and Thurman et al. (2009). Fishpond sediments occured beneath fill strata comprised of mixed terrestrial fills that likely post-date 1927. These fill layers contained historic material from the 1920s and 1930s when Kolowalu Fishpond and the surrounding wetlands were filled in preparation for the development of the Kaka‘ako area.

Based on the guidance of National Register Bulletin No. 15, SIHP # 50-80-14-6856 (Kolowalu Fishpond) retains its integrity of location, design, materials, and workmanship. SIHP #-6856 was recommended by Bell et al. (2006) as being eligible to the Hawai‘i Register under Criterion D (has yielded, or is likely to yield information important for research on prehistory or history). CSH recommends that SIHP # 50-80-14-6856 maintains the integrity to support its historic significance under Criterion D of the Hawai‘i Register and recommends eligibility to the National Register under Criterion D, exclusively for its information potential.

SIHP # 50-80-14-6856 has provided information, and can potentially provide additional information, on the formation, construction, depositional sequence, and contents of Kolowalu Fishpond. The possibility of encountering Kolowalu Fishpond sediments during future project-related ground disturbance warrants the implementation of an archaeological monitoring program. Archaeological monitoring will seek to recover data on the construction and design, depositional sequence, and extent of SIHP # 50-80-14-6856 as well as document any potential

structural remnants (eg. Fishpond walls) of Kolowalu Fishpond. Archaeological monitoring will involve recordation of stratigraphic profiles and sampling of exposed Kolowalu Fishpond sediments. Samples will be collected for radiocarbon and palynological analysis in an effort to potentially augment information from previous archaeological research conducted within Kolowalu Fishpond and other Hawaiian fishponds.

5.3.8 SIHP #50-80-14-7124

FORMAL TYPE:	Subsurface infrastructure remnants
FUNCTION:	Habitation and commercial infrastructure
PREVIOUS DOCUMENTATION:	Pammer et al. (2011)
AGE:	Post-Contact (post 1930)
NUMBER OF FEATURES:	31
TYPES OF FEATURES:	Buried in situ and displaced historic structural remnants, demolition debris, and refuse-enriched fill deposits
DISTRIBUTION:	Approximately 0.05 acres (within current project area), 1.49 acres (total area)
LOCATION:	Located southwest (*makai*) of Halekauwila Street between South Street and Keawe Street (West Kaka‘ako and Kaka‘ako Makai Geographic Zones)
TAX MAP KEY:	[1] 2-1-030:001 (Pammer et al. 2011); [1] 2-1-030:001 (within current project area)
LAND JURISDICTION:	Kamehameha Schools (Pammer et al. 2011); Bishop Estate (Waterpark Towers) (within current project area)
TEST EXCAVATION:	T-132

SIHP #50-80-14-7124 is a previously-identified cultural resource consisting of 31 archaeological features located southwest (*makai*) of Halekauwila Street between South and Keawe Streets within the West Kaka‘ako and Kaka‘ako Makai Geographic Zones (Figure 269 and Figure 270). This archaeological cultural resource consists of subsurface infrastructure remnants that were first identified by Pammer et al. (2011) during an archaeological inventory survey for the Block 2 Parking Lot (Figure 270). SIHP #-7124 was identified within T-132 during the current City Center AIS.

Pammer et al. (2011) documented SIHP #-7124 in 31 of 78 test trenches (Figure 271). They also identified a total of 31 archaeological features of SIHP #-7124 including in situ and displaced historic structural remnants, demolition debris, and refuse-enriched fill deposits (Figure 272, Figure 273, and Table 54). Based on background research and historic maps, components of SIHP #-7124 have been dated between 1914 and 1991 (Pammer et al. 2011, Vol. I:135). The fomer buildings on the subject property were demolished and rebuilt during various periods of urban development over the course of the twentieth century. During demolition, much of the building foundations and demolition debris was left ‘on-site’ and buried beneath various historic and/or modern fill layers, at depths ranging from 0.15 to 1.60 mbs (Pammer et al. 2011,Vol. I:135). Several of the larger foundation remnants and construction pit features extend down to, and/or into the coral shelf (as observed in Features E, F, and W), possibly suggesting that these remnants may be related to larger commercial structures. According to historic maps, large-scale commercial structures were situated in the northern and western portions of the Pammer et al. (2011) project area, which generally corresponds to the locations of Features E, F, and W (Test Trenches 11, 12, and 65). The demolished remnant materials include foundations composed of concrete and metal masses, red clay brick and mortar footings, concrete footings,

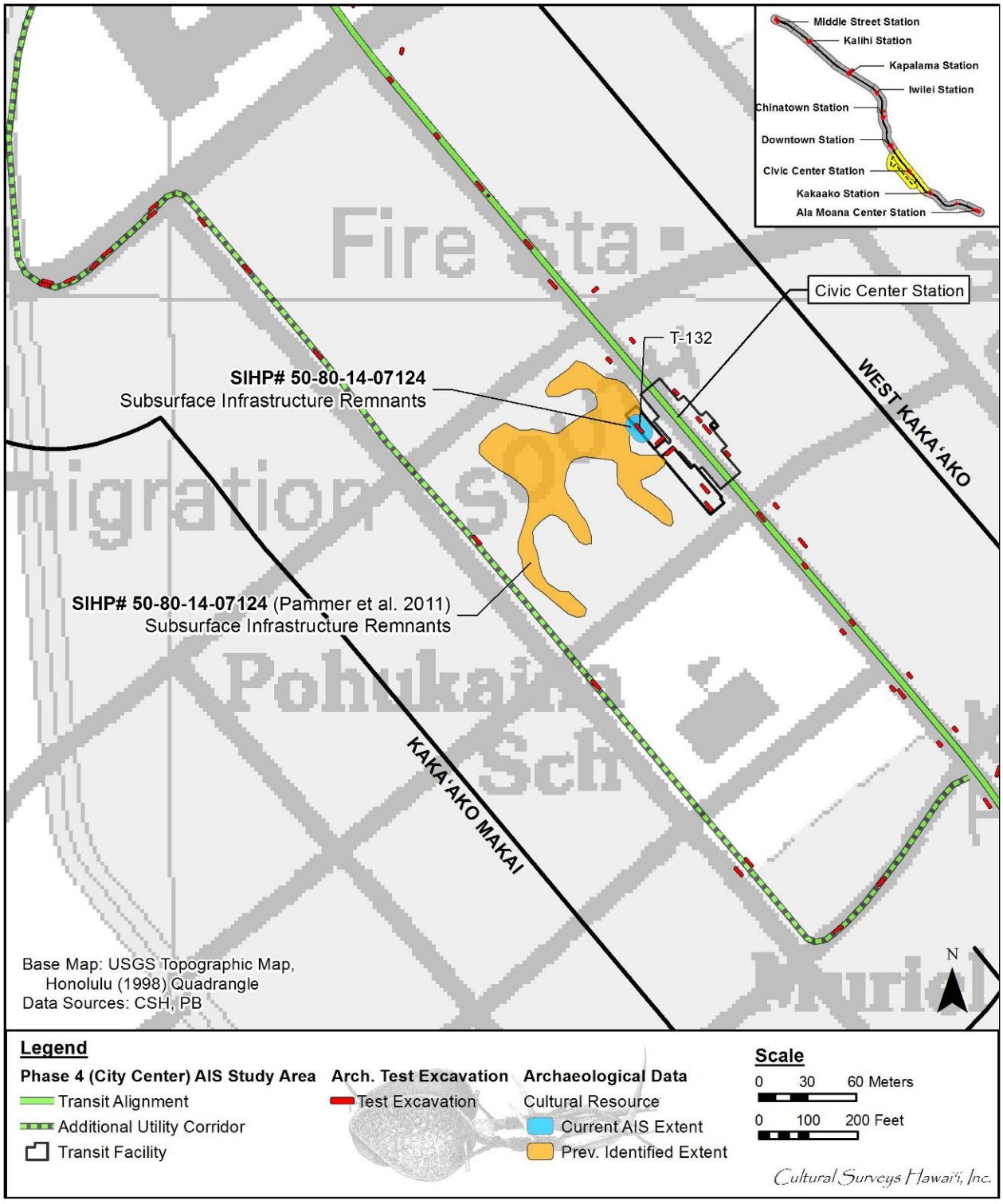

Figure 269. Locations of SIHP #-7124 within the West Kaka‘ako Geographic Zone corridor (base map: USGS 1998 Topographic Map of Honolulu Quadrangle)

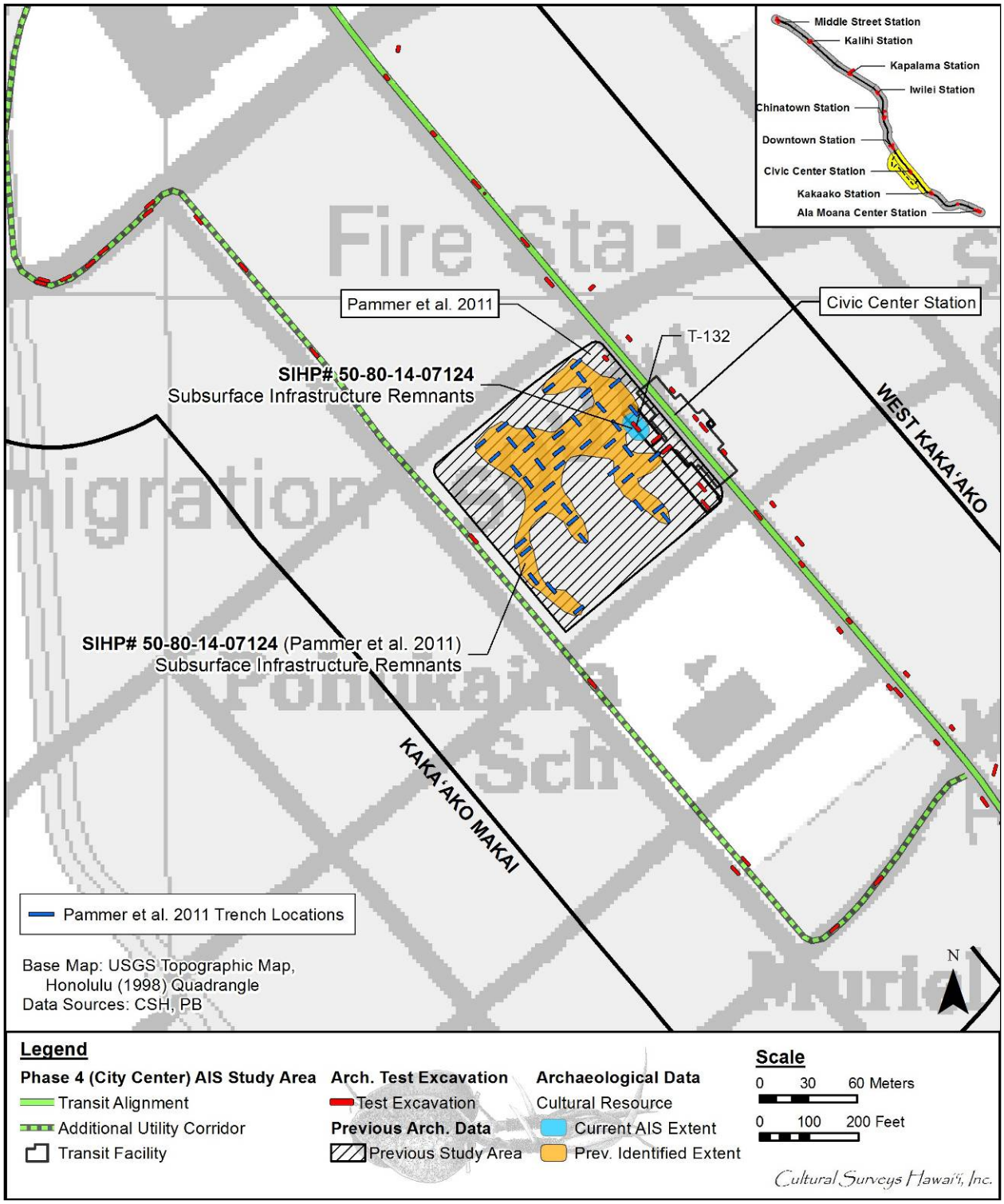

Figure 270. Location of SIHP #-7124 and the Pammer et al. (2011) study area within the West Kaka‘ako and Kaka‘ako Makai Geographic Zones (base map: USGS 1998 Topographic Map of Honolulu Quadrangle)

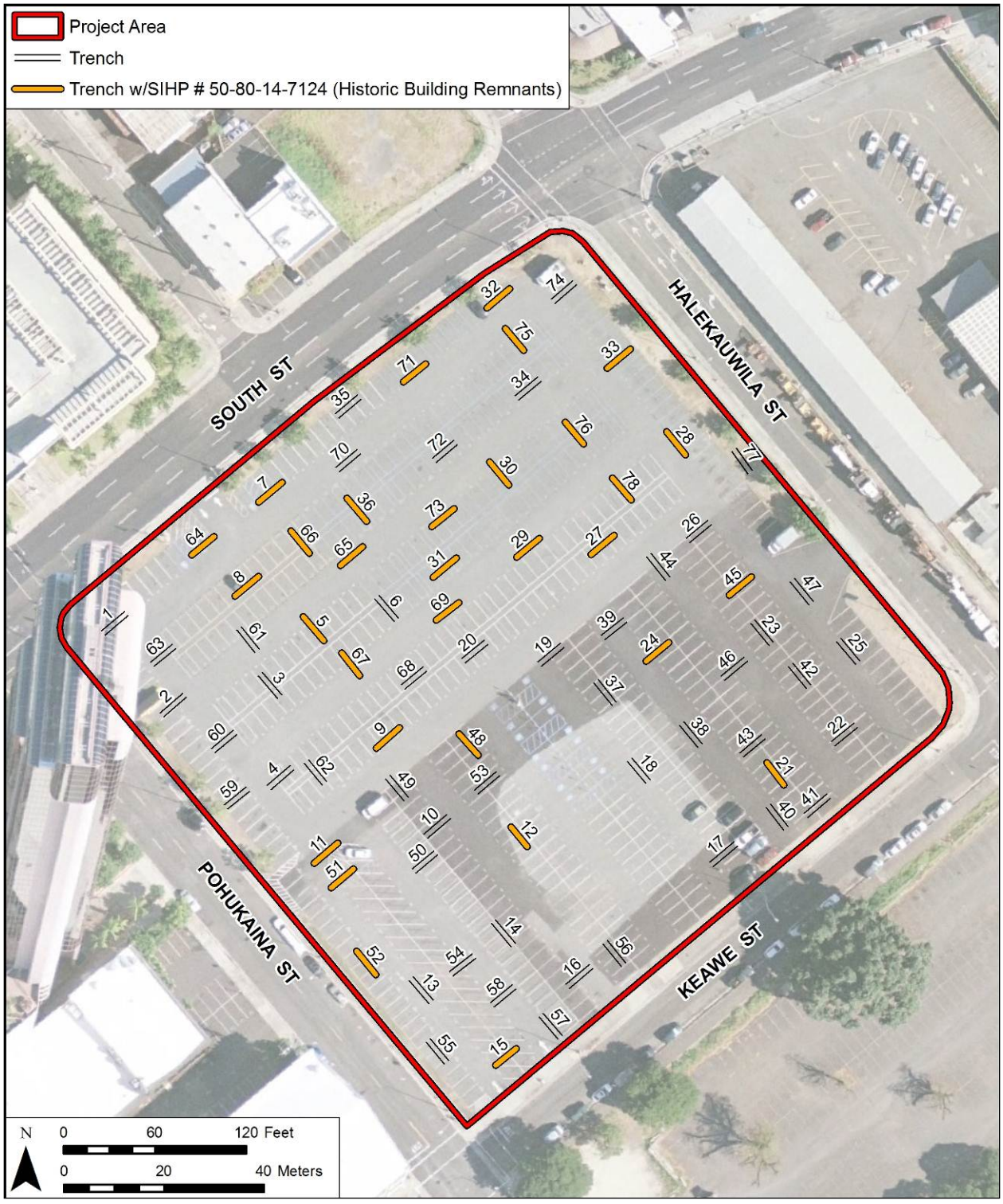

Figure 271. Aerial photograph (source: USGS Orthoimagery 2005) showing the locations of test trenches that contained SIHP #-7124 building remnants (yellow) within the Pammer et al. (2011) study area

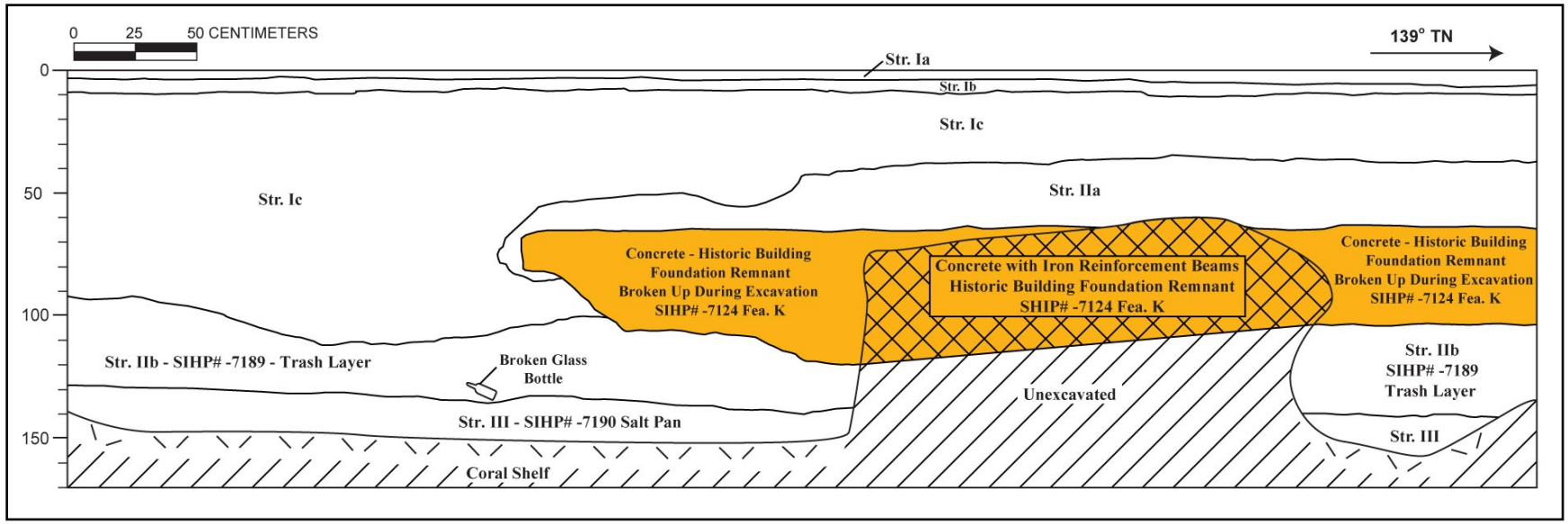

Figure 272. Pammer et al. (2011, Vol. I:172; color not in original)Test Trench 28 northeast wall profile, showing structural remnants (SIHP # -7124 Feature K) within fill deposits

Figure 273. Photograph of Test Trench 28, overview of northeast profile wall, view to east (Pammer et al. 2011, Vol. I:174)

Table 54. Stratigraphic Description of the Northeast Profile in Test Trench 28 (adapted from Pammer et al. 2011, Vol. I:173)

Stratum	Depth (cmbs)	Description
Ia	0-6	Asphalt
Ib	4-11	Fill; 10 YR 3/2 very dark grayish brown gravelly sandy clay; weak, fine, crumb structure; dry weakly coherent consistency; non-plastic; terrigenous origin; clear, smooth lower boundary. Base course for overlying asphalt surface.
Ic	9-113	Fill; 10 YR 6/3 pale brown crushed coral and sandy clay loam; structureless (single-grain); dry slightly hard consistency; non-plastic; mixed origin; clear, wavy and irregular lower boundary. Marine based fill material mixed with terrigenous sediment.
IIa	35-86	Fill; 7.5 YR 2.5/3 very dark brown gravelly sandy clay; weak, medium, blocky structure; dry weakly coherent consistency; slightly plastic; mixed origin; clear, wavy lower boundary. Backfill material from former building foundation excavation – covers large eroding concrete foundation remnant of historic building; designated SIHP #-7124, Feature K.
IIb	92-141	Fill; 10 YR 2/1 black sandy clay; weak, medium to coarse, blocky structure; moist friable consistency; slightly plastic; mixed origin; clear, smooth lower boundary. Burnt waste containing glass bottles, ceramics, metal implements, faunal (cut) bone, historic domestic waste - material related to open air burned debris from 1920s - SIHP #-7189 - used as landfill material for covering over Kaka‘ako wetlands.
III	128-156 (BOE)	A-Horizon; 10 YR 4/1 dark gray sandy clay ‘peat’; weak, medium, blocky structure; wet slightly sticky consistency; non-plastic; mixed origin; very abrupt, smooth lower boundary: very fine roots present. Former historic surface layer that overlies coral shelf, associated with the salt pans (SIHP #-7190). Heavily disturbed (scraped away).

and basalt and concrete flooring. Pammer et al. (2011, Vol. I: 135) noted that the site was discontinuous and that it likely extended outside of their project area boundary.

Pammer et al. (2011, Vol. I:119, 121) described the stratigraphy for the overall project area as follows:

> The natural coral shelf or the water table, provided there was no sand, marked the lower boundary for all trenches at approximately 2 meters below the ground surface level. The basic stratigraphic sequence consisted of the existing paved asphalt surface of the parking lot (not always having a base course layer), followed by varying layers of fill associated with the different periods of development within the project area, overlying natural sediments and the coral shelf.

Pammer et al. (2011) described the 31 features (Features A through EE) which they designated as components of SIHP #-7124 (Table 55 and Figure 271). The majority of the identified subsurface infrastructure remnants appear to be concentrated within the northwest half of their project area. This is likely due to the northwestern half having formerly consisted of substantial industrial buildings and infrastructure, while the southeastern half, and particularly the eastern portion, consisted of residential homes that required minimal subsurface disturbance during demolition, as shown in portions of the 1927 and 1950 Sanborn Fire Insurance Maps (Figure 274 and Figure 275). Pammer et al. (2011, Vol. I:142-236) described SIHP #-7124 Features A through EE as follows:

> **Feature A** was observed within Test Trench 5. Feature A consisted of two features (A-1 and A-2) containing modern and historic debris (glass, metal) including demolition debris from historic buildings (concrete, red brick, mortar). Feature A-2 consisted of a historic disturbance of the natural sand layer containing metal and charred wood. Based on the Sanborn Fire Insurance maps, the demolition debris likely originates from the demolition of the Pacific Engineering Co. Lt. Mill Work, or the Pacific Welding and Machine Works. The Feature A-2 debris likely originates from the filling of the project area for the Pacific Engineering Co. Lt. Mill Work and surrounding buildings.
>
> **Feature B** was observed within Test Trench 7. Feature B consisted of terrigenous fill containing construction material from a previously existing historic structure including brick, concrete block, glass fragments and ceramic fragments. The concrete block was likely a building foundation and runs east to west across the trench. Some brick was still observed in the sidewall of the trench and several bricks appeared to be beside the concrete block. Based on the Sanborn Fire Insurance maps, this debris and the building footing are likely associated with the northwest portion of the Pacific Welding and Machine Works building. The portion of this building observed within Test Trench 7 is labeled ‘Office’ on the 1914 and 1927 Sanborn maps.
>
> **Feature C** was observed within Test Trench 8. Feature C consisted of coral cobbles, concrete chunks, and various modern and historic debris, as well as remnants of historic building foundations. The observed historic building debris

Table 55. Archaeological Features of SIHP #-7124 Identified by Pammer et al. (2011)

Feature	Test Trench	Stratum	Type/Function
A	T-5	Ic	Demolition Debris
B	T-7	Ie	*In situ* Foundation
C	T-8	Ic	*In situ* Floor/Surface
D	T-9	Id	*In situ* Foundation
E	T-11	Ie	Demolition Debris
F	T-12	Ic	*In situ* Foundation
G	T-15	Ic	*In situ* Floor/Surface
H	T-21	Id	Demolition Debris
I	T-24	Ic	Demolition Debris
J	T-27	IIa	Demolition Debris
K	T-28	IIa	*In situ* Floor/Surface
L	T-29	IIa -IId	*In situ* Floor/Surface
M	T-30	IIa-IIb	Demolition Debris
N	T-31	IIa	*In situ* Floor/Surface
O	T-32	IIa-IIb	*In situ* Floor/Surface
P	T-33	IIa-IIc	*In situ* Floor/Surface
Q	T-36	IIa	Demolition Debris
R	T-45	Ig	*In situ* Floor/Surface
S	T-48	II	*In situ* Foundation
T	T-51	IIa	*In situ* Foundation
U	T-52	IIa-IIb	Demolition Debris
V	T-64	Ic	*In situ* Floor/Surface
W	T-65	Ic-III	*In situ* Foundation
X	T-66	II	*In situ* Foundation
Y	T-67	Id-IV	Demolition Debris
Z	T-69	II	Demolition Debris
AA	T-71	Ic	*In situ* Floor/Surface
BB	T-73	Id, IIa	*In situ* Floor/Surface
CC	T-75	Id	*In situ* Floor/Surface
DD	T-76	IIa	*In situ* Floor/Surface
EE	T-78	IIa	*In situ* Floor/Surface

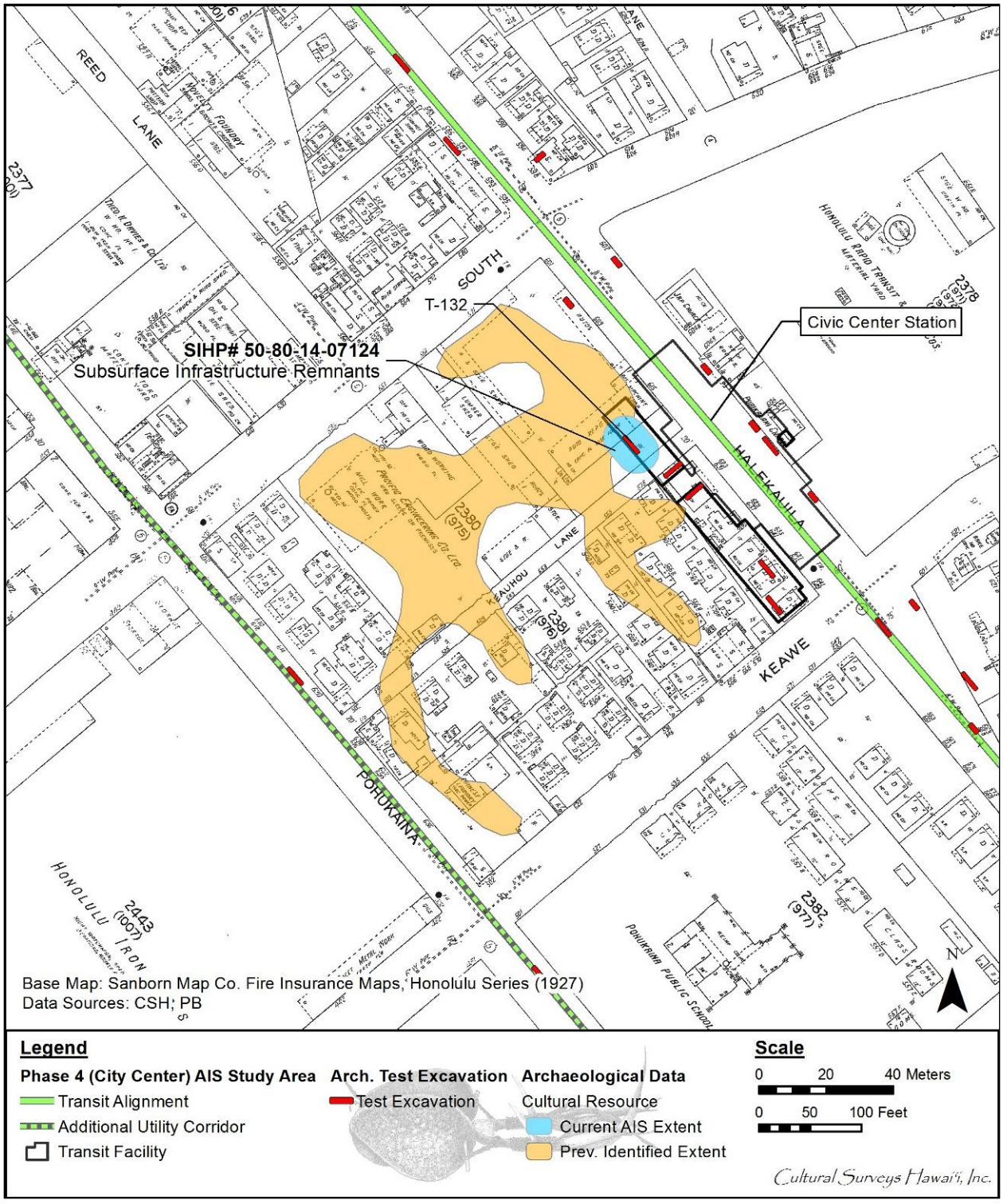

Figure 274. Portion of the 1927 Sanborn Fire Insurance Map depicting SIHP #50-80-14-7124 and T-132 within the footprint of an Auto Repair Garage

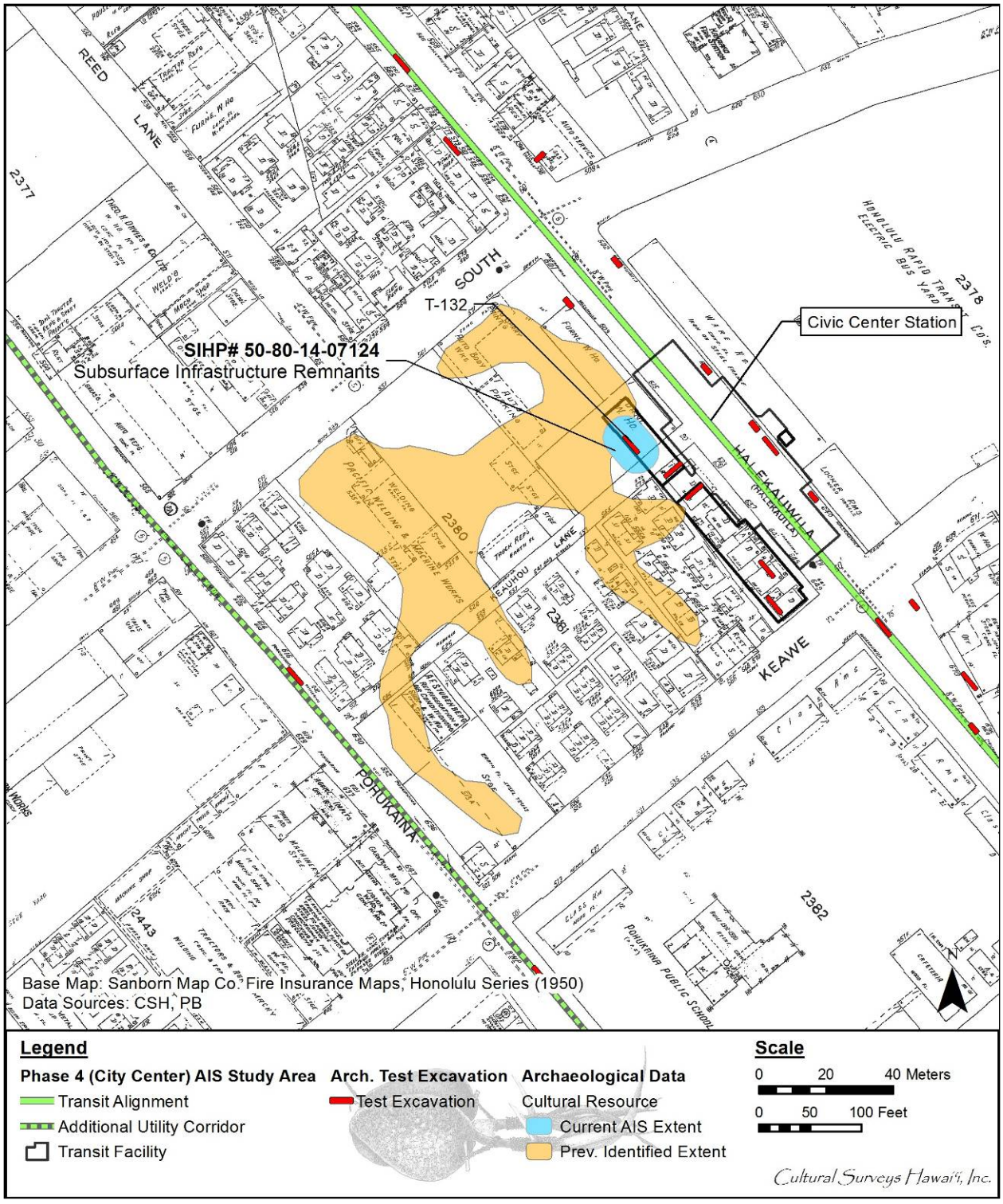

Figure 275. Portion of the 1950 Sanborn Fire Insurance Map depicting SIHP #50-80-14-7124 and T-132 within the footprint of a furniture warehouse

included concrete, red bricks, corroded iron rebar, broken glass and ceramics. A layer of basalt blocks was also located within this feature, likely an old floor, a walkway surface, or an old building foundation. These basalt blocks could not be removed along the southwest end of the trench. Based on the 1914 and 1927 Sanborn Fire Insurance maps, this debris and building footing is likely associated with the Pacific Engineering Co. Lt, Mill Work. No buildings were observed in this location on the 1950 and 1956 Sanborn maps.

Feature D was observed within Test Trench 9. Feature D consisted of historic debris and a building foundation constructed of brick and mortar observed in the northeast end of the trench. The observed historic building debris included nails, gravel, concrete bricks, and glass. Based on the Sanborn Fire Insurance maps, the debris and brick and mortar remnants do not appear to align with a building marked on these maps. The debris is likely related to the building marked ‘CARPP’ on the 1914 map or one marked ‘D’ for ‘Dwelling’ in the 1927 map. No buildings have been located within the northeast end of the trench, therefore the brick and mortar may be from an outdoor driveway or patio associated with the surrounding buildings, including the Pacific Engineering Co. Lt, Mill Work, the Pacific Welding and Machine Works, or possibly a walkway from the nearby old Keauhou Lane which ran parallel to the trench.

Feature E was observed within Test Trench 11. Feature E consisted of fill composed of a mixture of cinder, basalt gravel and crushed coral cobbles. This fill material also contained red bricks – likely from demolition of previous structures. Based on the Sanborn Fire Insurance maps, this debris is likely associated with the dwellings previously located in the southwest portion of the project area, as seen on the 1914, 1927, 1950 and 1956 maps. A. F. Stubenberg Refrigeration & Air Conditioning Shop and Warehouse is seen on the 1950 map, though this building is described as having concrete floors, a steel frame and trusses, which does not support the brick fragments observed within this trench. The 1956 map shows this building still standing, but vacant (‘VAC’).

Feature F was observed within Test Trench 12. Feature F consisted of two concrete footings located in the center and the northwest end of the trench. These likely represent remnant foundation structures from historic buildings. The observed debris included glass and ceramic fragments, though it is likely that this was imported with the soils brought in to fill in the remediation pond previously located within this location… Based on the Sanborn Fire Insurance maps, one small building, likely a residence, is the only building located within this trench. It is unlikely that a building of this size required large concrete footings as seen in Test Trench 12. …The origins of these footings remain unknown.

Feature G was observed within Test Trench 15. Feature G consisted of concrete block flooring located at only 30 cm below the current land surface. These concrete blocks likely represent flooring from an old historic building. Based on the Sanborn Fire Insurance maps, only the 1927 map shows a structure present within the Test Trench 15 location. This building is relatively small, labeled ‘A’

for ‘auto house or private garage’. This may have been associated with the Chinese Laundry, located just northwest of Test Trench 15.

Feature H was observed within Test Trench 21. Feature H consisted of fill containing domestic and construction debris – likely material from demolition of previous historic structures (Stratum Id). This debris included iron rebar, clay pipe fragments, glass and ceramic fragments. Based on the Sanborn Fire Insurance maps, this debris is most likely associated with the dwellings previously located within the northwest portion of this trench, seen on the 1927, 1950 and 1956 maps. The 1914 map labels this area ‘Barnhart Ice Co. Tables’; it is unlikely that the debris is associated with this business.

Feature I was observed within Test Trench 24. Feature I consisted of historical buildings remnants including steel cable and wiring, metal rebar and concrete chunks. A concrete jacket was also observed in the center of the trench, likely a utility jacket for an unknown building. Based on the Sanborn Fire Insurance maps, the buildings previously located here consisted of private dwellings. Two separate buildings were located within this trench, a single dwelling on the southeast end, and a building containing two dwellings in the northwest side. The dwelling on the northwest end is also marked ‘NO CH’, which stands for ‘no chimney’. The observed concrete jacket appears to run between these two buildings.

Feature J was observed within Test Trench 27. Feature J consisted of construction debris including clay pipe, bricks and concrete, likely from historic building demolition (Stratum IIa). Based on the Sanborn Fire Insurance maps, this demolition debris is likely associated with a furniture warehouse located directly within this trench. This building was only observed on the 1950 and 1956 Sanborn maps. The 1927 Sanborn map depicts an auto repair shop abutting this trench. This shop may also be the source of the demolition debris, though it is unlikely based on the type of debris observed.

Feature K was observed within Test Trench 28. Feature K consisted of backfill material from the former building foundation excavation which covers a large, eroding, concrete foundation or flooring. The fill material surrounding this eroding concrete flooring also contained some trash including unidentified bottle glass fragments. Based on the Sanborn Fire Insurance maps, this concrete flooring is most likely associated with a machine shop building, part of an auto repair garage seen on the 1927 map. The auto repair shop is labeled on the 1927 map as having concrete flooring and electric power. Feature K may also be associated with the furniture warehouse observed on the 1950 and 1956 maps.

Feature L was observed within Test Trench 29. Feature L consisted of four separate layers showing evidence of historic building remnants. The topmost layer (Stratum IIa) consists of grading fill containing construction debris including clay pipe, brick & concrete fragments. The underlying layer (Stratum IIb) consists of fill containing red brick fragments, metal implements (nails, bars), glass fragments

and gravel. This layer partially surrounds the underlying historic building flooring. These two layers are likely a result of historic building demolition debris.

The old building foundation/flooring is located beneath these two fill layers and is composed of compacted, corroded, brittle, melted metal (Stratum IIc). This metal may have been imported from scraps from the nearby Honolulu Iron Works. The Pacific Engineering Co., observed only on the 1914 and 1927 maps, was located near this test trench and had a close association to the Honolulu Iron Works. Many of the officers of this company were also managers or officers for the Honolulu Iron Works. Directly underlying the corroded metal flooring is a historic fill likely associated with the overlying corroded metal flooring (Stratum IId).

The 1914 Sanborn map shows this trench located over a box with an ‘X’ which represents a stable. The size of this stable, depicted on this figure, is 558 ft. The 1927 map places a new building in this area which is labeled ‘Autos’, likely associated with the nearby auto repair garage. The 1950 and 1956 maps show either the same building relabeled ‘STGE.’ for ‘storage’, or a building of relatively the same size and in the same location as the ‘autos’ building. This storage building may be associated with the furniture warehouse located where the auto repair shop was previously, though it is more likely that it is associated with the truck repair garage. The truck repair garage is labeled as having an earth floor. The 1956 map also labels the open area west of this storage shed as ‘Contractors Equipt’, possibly suggesting that the area was used to store contractors equipment. On the 1950 map, the west central section of the project area is owned by the Pacific Welding & Machine Works, likely a subsidiary company (or a name change) for the Pacific Engineering Co.

Feature M was observed within Test Trench 30. Feature M consisted of a layer of historic fill mixed with historic building debris (Stratum IIa) and a pocket of backfill material containing a large cable and rusted metal fragments (Stratum IIb). The layer of debris contained clay bricks, concrete, metal and historic waste including glass bottles and ceramics. Both strata are likely buried demolition material from the demolition of the previous structures.

Similar to Feature L, Feature M contains some evidence of corroded, melted metal flooring within the demolished building debris. This metal may have been imported from scraps from the nearby Honolulu Iron Works. The Pacific Engineering Co., found only on the 1914 and 1927 maps, was located southwest of this test trench and had a close association to the Honolulu Iron Works.

The 1927 Sanborn map places this trench between two storage sheds. The 1950 and 1956 maps also show the trench between two buildings, a storage shed and an auto parking building (1950) / auto repair garage (1956). Seeing as no building was observed within this test trench location, and based on the metal presenting in loose chunks instead of cohesive flooring, it is likely that the debris originates from the demolition of the surrounding buildings. This trench is also located near the auto body shop as seen on the 1927, 1950 and 1956 maps, suggesting much of the debris may also be buried debris from the shop.

Feature N was observed within Test Trench 31. Feature N consisted of an amalgamation of melted metal used to create a floor or surface. The old building foundation/flooring is located beneath multiple fill layers and is composed of compacted, corroded, brittle, melted metal, slag and other debris. This metal may have been imported from scraps from the nearby Honolulu Iron Works. This flooring is similar to that seen in Features L and M.

The 1914 and 1927 Sanborn maps place this trench just outside the southeast corner of the Pacific Engineering Co. building, which had a close association to the Honolulu Iron Works. The 1950 and 1956 maps also show the trench in an open area in front of the Truck Repair Garage. The 1950 map labels the west central section of the project area as the Pacific Welding & Machine Works. This is likely a subsidiary company (or a name change) for the Pacific Engineering Co. Seeing as no building was observed within this test trench location, the presence of this flooring suggests that this area and the type of flooring may have been used as an outside driveway/access area.

Feature O was observed within Test Trench 32. Feature O consisted of an amalgamation of melted metal used to create a floor or foundation surface. The old building foundation/flooring is located beneath multiple fill layers and is composed of compacted, corroded, brittle, melted metal, basalt and cinder (Stratum IIa). This metal may have been imported from scraps from the nearby Honolulu Iron Works and is similar to what has been observed in previous features (Features L, M and N). Underlying this flooring is a thin layer of clay that was likely placed as a base for the melted metal (Stratum IIb).

The 1927 Sanborn map places this trench just outside a storage shed, within an area associated with an auto repair shop. The 1950 map locates the trench within an auto body works building (within a section of the building labeled ‘Auto Spray Painting’) while in 1957 map this portion of the building was used for welding. This trench is further away from the Pacific Engineering Co. and associated buildings which this corroded metal flooring is thought to be associated with, due to their close ties to the adjacent Honolulu Iron Works. This suggests that the corroded and melted metal scraps used as flooring may have actually been used by many of the buildings within this industrial and commercial portion of the project area as both flooring inside of buildings, and outside for access areas and driveways.

Feature P was observed within Test Trench 33. Feature P consisted of an amalgamation of melted metal and two associated fill layers. The old building foundation/flooring, composed of compacted, corroded, brittle, melted metal, basalt and cinder (Stratum IIb), is located below a layer of fill composed of clay material mixed with cinder (Stratum IIa). The old flooring was only observed in the southwest end of the trench, contiguous with a fill layer similar to the fill overlying the flooring (Stratum IIc). The overlying fill contains clay brick fragments observed only in the portion overlying the old corroded metal flooring. This suggests that the metal may have been a base with the actual floor consisting

of bricks, which were removed during the building demolition. Underlying this flooring is a thin layer of clay that may have been a base for the melted metal. The melted metal was likely constructed with imported scraps from the nearby Honolulu Iron Works and is similar to what has been observed in previous features (Features L - O).

The 1927 Sanborn map places the northeast end of this trench within an ‘autos’ building, while the 1950 and 1957 maps locate the trench within a furniture warehouse. The northeast end of the trench does not contain any part of Feature P, which suggests that the metal flooring is not associated with the autos building flooring. This trench is not near the Pacific Engineering Co. and associated buildings, which the corroded metal flooring was thought to be associated with, due to their close ties to the adjacent Honolulu Iron Works. This suggests that the corroded and melted metal scraps may have actually been used by many of the buildings within this industrial and commercial portion of the project area as both flooring inside of buildings as well as outside access areas and driveways.

Feature Q was observed within Test Trench 36. Feature Q consisted of fill mixed with debris from demolished historical buildings. The observed debris included structural debris (clay bricks, cinder) and domestic debris (glass, faunal bone). Based on the Sanborn Fire Insurance maps, this demolition debris likely originates from the demolition of the Pacific Engineering Co. Lt. Mill Work, or the Pacific Welding and Machine Works.

Feature R was observed within Test Trench 45. Feature R consisted of boulders arranged as a previous surface or layer, located in the east portion of the trench. These boulders are likely remnants of an old flooring. Based on the Sanborn Fire Insurance maps, this floor most likely originates from one of the dwellings previously located within this portion of the project area. None of the Sanborn maps show a building on this side of the trench, which may suggest that the boulders actually represent a paved area outside of a dwelling, used as a patio or a walkway between houses.

Feature S was observed within Test Trench 48. Feature S consisted of a utility trench containing an electric line and an old concrete pilon with rebarb reinforcment from an old building foundation. The Sanborn Fire Insurance maps do not show a building previously located within this test trench location and the concrete pylon does not line up with anything nearby. However, a modified figure from an Ogden report (1996) on the remediation efforts and underground storage tanks before their removal and demolition in the 1990s, shows a building labeled ‘Former Fire Extinguisher Service’ within the southeastern half of Test Trench 48… It is most likely that this building is the source of the concrete pylon…

Feature T was observed within Test Trench 51. Feature T consisted of two separate disturbances, an area containing backfill material (modern disturbance), and a pit containing an old building wall or foundation and historic bottles, ceramics, and faunal bone (Stratum IIa). Both of these disturbances intruded into the underlying SIHP #-7189, incinerator fill layer, and it appears that the historic

material (bottles, ceramics, faunal bone) originate from this layer. The concrete flooring is located only in the northeast end of the test trench. The concrete block is approximately 50 cm from this floor and is likely a wall remnant associated with the flooring. Based on the Sanborn Fire Insurance maps, it is most likely that these remnants are associated with the A. F. Stubenberg Refrigeration & Air Conditioning Shop and Warehouse as seen on the 1950 map. This map describes this building as having concrete floors, a steel frame and trusses. The 1956 map shows the building still standing but vacant ('VAC').

Feature U was observed within Test Trench 52. Feature U consisted of demolition debris from historic buildings, including an abundance of ceramics and glass fragments. An old sewer line and associated concrete jacket were observed in the northwest end of the trench. Based on the Sanborn Fire Insurance maps, this debris likely originates from the demolition of the Chinese Laundry, A. F. Stubenberg Refrigeration & Air Conditioning Shop and Warehouse, or the multiple dwellings observed on the 1914 and 1927 Sanborn maps. The old sewer line observed may be associated with any of the buildings within the project area, industrial or residential.

Feature V was observed within Test Trench 64. Feature V consisted of imported cinder fill overlying a layer of large coral boulders in the northeast end of the trench. The coral boulders, as well as the construction debris (i.e. brick) are likely remnants of an old building flooring and evidence of its demolition. Based on the Sanborn Fire Insurance maps, the debris and old flooring are likely associated with the Pacific Engineering Co. Lt. Mill Work, or the Pacific Welding and Machine Works buildings. The 1914 and 1927 Sanborn maps place this trench just outside of the west corner of the Pacific Engineering Co. building while the 1950 and 1956 Sanborn maps show this trench within the west corner of the Pacific Welding and Machine Works building.

Feature W was observed within Test Trench 65. Feature W consisted of a concrete footing observed near the bottom of the trench (at approximately 120 cmbs) and extended across the trench. The footing extends through the coral to an unknown depth, and is associated with a large disturbed area, likely from the old building associated with this footing and its subsequent demolition. Feature W appears to extend from approximately 10-15 cm above the natural surface down to the coral shelf, excavating through a natural sand layer and a sandy modern A-horizon. A modern pit feature was also observed in this trench, just to the northeast of Feature W. Based on the Sanborn Fire Insurance maps, the location of this footing suggests that it is likely associated with the Pacific Welding and Machine Works building, observed on the 1950 and 1956 maps. This building is observed bisecting Test Trench 65, the edge lining up perfectly with the location of the concrete footing.

Feature X was observed within Test Trench 66. Feature X consisted of a layer of cinder, cobbles, boulders, and debris (ceramics and glass) likely associated with an old building foundation and subsequent demolition. Based on the Sanborn Fire

Insurance maps, this debris and old foundation are likely associated with the Pacific Engineering Co. Lt. Mill Work, or the Pacific Welding and Machine Works.

Feature Y was observed within Test Trench 67. Feature Y consisted of debris likely associated with building demolition. The observed debris included window pane glass, limestone/coral chunks, cinder blocks, bricks, metal scraps, and trash (i.e. coke bottles, saw cut faunal bone, and a rubber tire). Based on the Sanborn Fire Insurance maps, this demolition debris likely originates from the demolition of the Pacific Engineering Co. Lt. Mill Work, or the Pacific Welding and Machine Works. The 1950 and 1956 Sanborn maps depict this trench within a storage building associated with the Pacific Welding and Machine Works.

Feature Z was observed within Test Trench 69. Feature Z consisted of imported cinder containing brick, ceramics, glass, metal scraps, and other debris associated with the demolition of an old building. The observed debris included a modern feature containing additional debris, likely used as an area to bury leftover demolition debris. Based on the Sanborn Fire Insurance maps, Test Trench 69 is not within the footprint of a building, but is located adjacent to the old Pacific Engineering Co. Lt. Mill Work, and the Pacific Welding and Machine Works buildings. It is likely that this demolition debris originates from the demolition of either the Pacific Engineering Co. Lt. Mill Work, or the Pacific Welding and Machine Works buildings.

Feature AA was observed within Test Trench 71. Feature AA consisted of a layer of mixed lenses containing various materials including reddish sand, cinder, and clay. An amalgamation of melted metal was observed in the southwest end of the trench, as well as portions of the northeast end. This old flooring is similar to that seen in Features L-P, though the flooring observed within this trench was brittle and the backhoe was able to successfully excavate through it. The associated fill layer contains clay brick fragments, which were commonly observed within the fill layers associated with the old metal flooring. The continued presence of the brick fragments associated with the metal flooring suggests that the metal may have been a base for brick flooring, which was removed during the building demolition. The melted metal was likely constructed from imported scraps from the nearby Honolulu Iron Works.

The 1914 Sanborn map places the southwest end of this trench within a storage building, likely associated with the Pacific Engineering Co. Lt. This building is also observed on the 1927 Sanborn map as well as a storage shed in the northeast end of the trench. The 1950 and 1957 maps locate the northeast end of the trench within an auto body works building. This trench is near the Pacific Engineering Co. and associated buildings, which this flooring was thought to be associated with. However, the distribution of the flooring is contained primarily in the north corner of the project area. This suggests that the corroded and melted metal scraps may have actually been used by many of the buildings within this industrial and

commercial portion of the project area as both flooring inside of buildings as well as outside access areas and driveways.

Feature BB was observed within Test Trench 73. Feature BB consisted of an amalgamation of melted metal and two associated fill layers. The old building foundation/flooring composed of compacted, corroded, brittle, melted metal, basalt and cinder is underlying a layer of fill composed of clay material mixed with cinder. The old flooring was observed along the entire length of the trench and had been broken up and disturbed previously in the northeast end, possibly by the demolition of the associated buildings. The undisturbed portions of Feature BB were extremely hard. Underlying this flooring is a thin layer of loam that was likely placed as a base for the melted metal. The melted metal was likely constructed with imported scraps from the nearby Honolulu Iron Works and is similar to those observed in previous features (Features L – P and AA).

The 1914 Sanborn map places the northeast end of the trench within a storage building (likely associated with the Pacific Engineering Co. Lt) and the southwest end in the northeast edge of the Pacific Engineering Co. building. The northeast end of the trench is still within the Pacific Engineering Co. Lt building on the 1927 Sanborn map. On the 1950 and 1957 maps, the trench is within an open area surrounded by the Pacific Welding and Machine Works buildings, a truck repair garage and an auto body works garage. This trench is near the Pacific Engineering Co. and associated buildings, thought to be associated with this flooring due to their close ties to the adjacent Honolulu Iron Works. However, the distribution of the flooring is contained primarily to the north corner of the project area. This suggests that the corroded and melted metal scraps may have actually been used by many of the buildings within this industrial and commercial portion of the project area as both flooring inside of buildings as well as outside access areas and driveways.

Feature CC was observed within Test Trench 75. Feature CC consisted of an amalgamation of melted metal and an associated fill layer. The old building foundation/flooring composed of compacted, corroded, brittle, melted metal, basalt and cinder is located below a layer of fill composed of clay material mixed with cinder (Stratum Id). The fill material contained chunks of cement, likely demolition material. The old flooring was observed along the entire length of the trench. The flooring was extremely hard and in the northwest end was unable to be excavated. The melted metal was likely constructed with imported scraps from the nearby Honolulu Iron Works and is similar to that observed in previous features (Features L–P, AA-BB).

Based on the Sanborn maps, this trench was in an open area used by an auto body shop and a furniture warehouse. This trench is not within a building or near the Pacific Engineering Co. and associated buildings, which this corroded metal flooring was thought to be associated with, due to their close ties to the adjacent Honolulu Iron Works. The distribution of the flooring is contained primarily to the north corner of the project area. This suggests that the corroded and melted

metal scraps may have actually been used by many of the buildings within this industrial and commercial portion of the project area as both flooring inside of buildings, as well as outside access areas and driveways.

Feature DD was observed within Test Trench 76. Feature DD consisted of an amalgamation of melted metal and an associated fill layer. The fill layer contains red bricks, glass and some cinder within a loamy soil above and below the old metal flooring (Stratum IIa). The clay brick fragments were observed only above the old corroded metal flooring. This suggests that the metal may have been a base for a brick floor which was removed during the building demolition. The old building foundation/flooring was composed of compacted, corroded, brittle, melted metal, basalt and cinder and observed along the entire length of the trench. The melted metal was likely imported scraps from the nearby Honolulu Iron Works and is similar to what has been observed in previous features (Features L–P, AA-CC).

Based on the Sanborn maps, similar to Feature CC this trench was located in an open area used by an auto body shop and a furniture warehouse. This trench is not within a former building or near the Pacific Engineering Co. and associated buildings, which this corroded metal flooring was thought to be associated with. The distribution of the flooring is contained primarily to the north corner of the project area. This suggests that the corroded and melted metal scraps may have actually been used by many of the buildings within this industrial and commercial portion of the project area as both flooring inside of buildings as well as outside access areas and driveways.

Feature EE was observed within Test Trench 78. Feature EE consisted of an amalgamation of melted metal and two associated fill layers. The fill layer overlying the old flooring contains concrete boulders and slabs within an area of disturbance, possibly from a building foundation, and red brick. The upper boundary of the corroded metal flooring was partially disturbed by the area of disturbance within the overlying fill layer. The clay brick fragments appear to be associated with the old corroded metal flooring. This suggests that the metal may have been a base with the actual floor consisting of bricks, which were removed during building demolition. The old building foundation/flooring was composed of compacted, corroded, brittle, melted metal, basalt and cinder. Underlying this flooring is a thin layer of loam that was likely placed as a base for the melted metal. The old flooring was observed along the entire length of the trench. The melted metal was likely imported scraps from the nearby Honolulu Iron Works and is similar to that observed in previous features (Features L–P, AA-DD).

The 1927 Sanborn map places this trench within the auto repair garage which had concrete flooring. On the 1950 and 1957 maps the trench is within the furniture warehouse…

During the current AIS study, numerous red bricks were identified within Stratum Id of T-132. Stratum Id consisted of dark brown gravelly to stony clay ranging from 0.30 to 1.36 mbs. A total of five strata (Ib-II) were observed within T-132 beneath the modern paved asphalt layer (Stratum Ia) (Figure 276, Figure 277, and Table 56). These strata consisted of a very gravely sandy clay fill deposit (Stratum Ib), a crushed coral fill deposit (Stratum Ic), a gravelly to stony clay fill deposit containing red bricks associated with SIHP #-7124 (Stratum Id), a burnt trash layer associated with SIHP #-7189 (Stratum Ie), and natural marine sediment (Stratum II).

Stratum Id contained red bricks, metal, ceramic and glass fragments, and one cat (*Felis catus*) bone. The red bricks observed within Stratum Id of T-132 cannot be directly attributed to any particular historic building or function. The red bricks were determined to date between 1918 and 1978. A review of historic maps indicates that there were two primary phases of urban development in the vicinity of T-132 postdating 1910. The 1927 Sanborn map places the location of T-132 within an auto repair garage, which had concrete flooring (see Figure 274). By 1950, the location of T-132 was within the footprint of a furniture warehouse (see Figure 275). The red bricks within Stratum Id of T-132 are considered to be a component of the previously-identified SIHP # 50-80-14-7124 based on similarities in composition and depositional context, as well as proximity to the structural remnants, debris, and deposits documented by Pammer et al. (2011).

In summary, SIHP # 50-80-14-7124 consists of buried in situ and displaced historic infrastructure remnants, demolition debris, and refuse-enriched fill deposits that were initially identified by Pammer et al. (2011) during an archaeological inventory survey of a 4-acre property in Kaka‘ako (see Table 55). The in situ archaeological remains associated with SIHP #-7124 include seven foundation features and 14 floor/surface features. Displaced demolition/building debris was identified within ten test trenches by Pammer et al. (2011), and also within T-132 during the current City Center AIS. The historic and modern building materials identified by Pammer et al. (2011) date between 1914 and 1991. The red bricks observed within Stratum Id of T-132 dated between 1918 and 1978 and are designated as a component of SIHP #-7124. The total area of this historic property is approximately 1.49 acres. Additional components of SIHP #-7124 may exist n undocumented portions within and/or adjacent to the current project area.

SIHP # 50-80-14-7124 directly overlies a reclamation-related trash layer designated SIHP # 50-80-14-7189. The trash layer is identified as being associated with open air burning of trash and of containing late nineteenth- and early twentieth-century bottles as well as plastic, metal, ceramic, wood and other items or debris. Historic photos show open air burning in Kala‘ako during the 1930s (see Figure) It is likely SIHP # 50-80-14-7124 post-dates the 1930s based on its stratigraphic position above SIHP # 50-80-14-7189.

Based on the guidance of the National Register Bulletin No.15, SIHP # 50-80-14-7124 retains its integrity of location, materials, and workmanship. SIHP #-7124 was previously determined eligible to the Hawai‘i Register under Criterion A (associated with events that have made an important contribution to the broad patterns of our history) and D (has yielded, or is likely to yield information important for research on prehistory or history). Based on the results of the current City Center Section 4 AIS, and in consultation with SHPD, CSH recommends that SIHP #-7124 does not convey its significance under Criterion A for either the Hawai‘i or National Registers. The structural remnants have been completely altered by historic to modern land

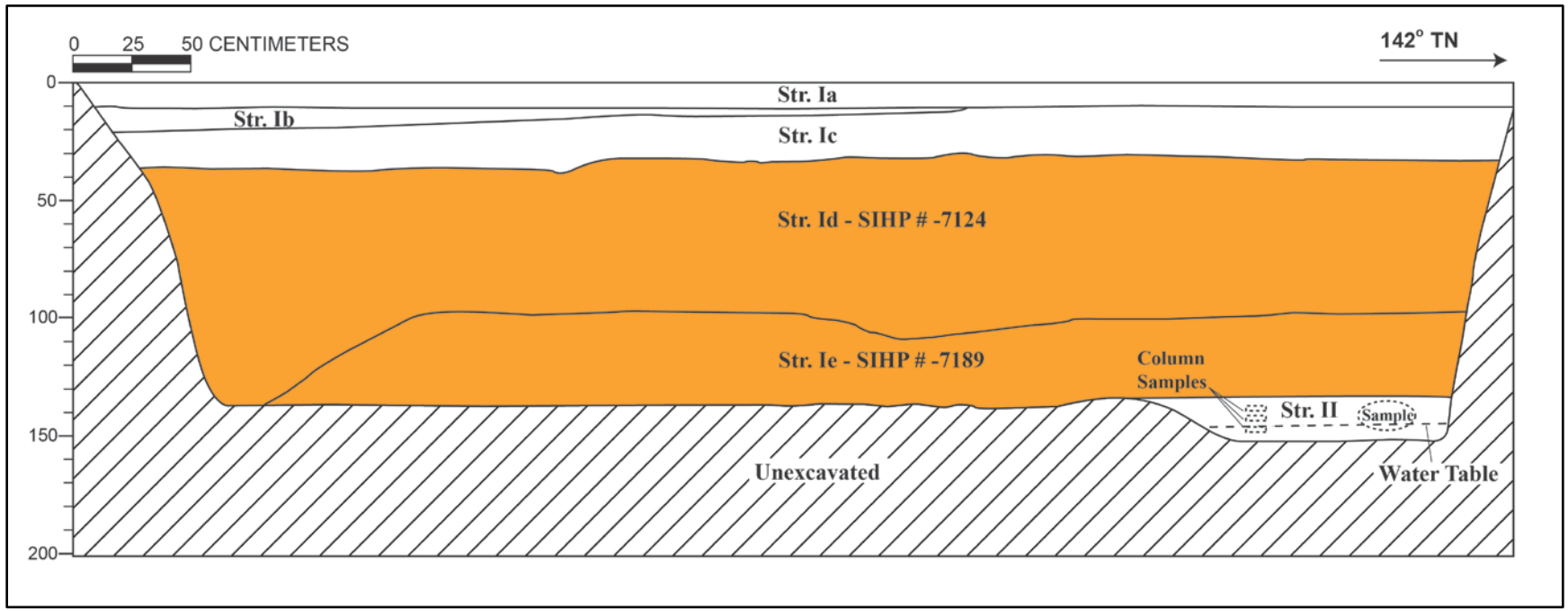

Figure 276. T-132 northeast wall profile, showing Stratum Id containing brick rubble identified as a component of SIHP # -7124 (historic structural remnants) which overlies reclamation-related burnt trash layer (SIHP # -7189)

Figure 277. T-132, Photograph of northeast profile wall, view to north

Table 56. T-132 Stratigraphic description for the northeast profile in T-132

Stratum	Depth (cmbs)	Description
Ia	0-10	Asphalt
Ib	10-20	Fill; 10 YR 4/2 (dark grayish brown); very gravelly sandy clay; weak, fine, crumb structure; dry, loose consistency; slightly plastic; terrigenous origin; very abrupt, broken/discontinuous lower boundary; base course, present only in northwestern half, crushed basalt in clay loam matrix
Ic	10-38	Fill; 10 YR 8/2 (very pale brown); extremely gravelly sand; structureless, single-grain; dry, weakly coherent consistency; non-plastic; marine origin; very abrupt, smooth lower boundary; crushed coral fill
Id	30-136	Fill; 7.5 YR 3/3 (dark brown); gravelly to stony clay; weak, fine, blocky structure; moist, firm consistency; very plastic; terrigenous origin; clear, smooth lower boundary; contained many burnt red bricks and basalt gravel to cobbles; red bricks likely from historic building (SIHP #-7124); contained bands, striations black mixed fill
Ie	97-139	Fill; 10 YR 2/1 (black); clay loam, medium, blocky structure; moist, friable consistency; plastic; terrigenous origin; lower boundary not visible; contained ceramic fragments, shoes, glass bottles, leather pouch, coconut husks, round wooden bases, non-diagnostic metal pieces, cut wood, synthetic roof tile, old telephone wire; contained burnt trash (SIHP #-7189) used to cover Kaka‘ako wetlands from late 1800s-early 1900s: faunal bones, lauhala mat at Ie/II
II	139-151	Natural; 2.5 Y 5/1 (gray); sandy silty clay; weak, medium, blocky structure; wet, sticky consistency; plastic; marine origin; lower boundary not visible; marine sediment contained organics, shells

reclamation and urban development. Accordingly, CSH recommends that this cultural resource maintains the integrity to support its historic significance only under Criterion D of the Hawai‘i Register and recommends eligibility to the National Register under Criterion D, exclusively for its information potential.

SIHP #-7124 has provided information, and can potentially provide additional information, on twentieth century habitation and former commercial infrastructure within Kaka‘ako. The potential for the identification and impact of additional buried structural remnants during project construction within the current project APE warrants the implementation of an archaeological monitoring program. Archaeological monitoring will recover additional data on the location and distribution of any buried structural remnants encountered that may be associated with SIHP #-7424. If encountered, documentation will include plan and/or profile maps, GPS locations, photographs, and sample collection of datable components. These data will be used to refine the age of construction of individual structural remnants and to potentially correlate remnants to specific former structures shown on historic maps.

5.3.9 SIHP #50-80-14-7189

FORMAL TYPE:	Subsurface burnt trash deposit
FUNCTION:	Refuse disposal
PREVIOUS DOCUMENTATION:	Pammer et al. (2011)
AGE:	Post-Contact (late 1800s-1930s)
NUMBER OF FEATURES:	N/A
TYPES OF FEATURES:	N/A
DISTRIBUTION:	2.56 acres (interpolated total area)
LOCATION:	In the vicinity of the block bounded by Halekauwila, Keawe, Pohukaina, and South Streets (West Kaka‘ako and Kaka‘ako Makai Geographic Zones)
TAX MAP KEYS:	[1] 2-1-030:001 (Pammer et al. 2011); [1] 2-1-030, [1] 2-1-030:001, [1] 2-1-031, [1] 2-1-051, and [1] 2-1-052 (within current project area)
LAND JURISDICTION:	Kamehameha Schools (Pammer et al. 2011); Bishop Estate (Waterpark Towers) and the City and County of Honolulu (within current project area)
TEST EXCAVATIONS:	T-130, T-132, T-134, T-138, T-140, T-231A, T-232, and T-232A

SIHP #50-80-14-7189 is a subsurface burnt trash deposit previously-identified within the block bounded by Halekauwila, Keawe, Pohukaina, and South Streets within the West Kaka‘ako and Kaka‘ako Makai Geographic Zones (Figure 278). This archaeological cultural resource was first identified by Pammer et al. (2011) during an archaeological inventory survey for the Block 2 Parking Lot located between the HHCTCP alignment along Halekauwila Street and an additional HHCTCP utility corridor along Pohukaina Street, as well as a portion of the Civic Center Station footprint (Figure 279). SIHP #-7189 was identified within T-130, T-132, T-134, T-138, T-140, T-231A, T-232, and T-232A during the current City Center AIS.

The Pammer et al. (2011) study identified the subsurface burnt trash deposit within 49 of 78 test excavations (Figure 280). SIHP #-7189 was described as “a layer of burnt historic debris, used to fill the unwanted wetlands of Kewalo, Kaka‘ako, and Waikīkī” (Pammer et al. 2011:283). The depth and content of the burnt trash deposit varied across the study area. In general, SIHP #-7189 ranged from 0.4 to 1.8 mbs. The general stratigraphic sequence consisted of historic and modern fill layers associated with various periods of urban development dating to the twentieth century overlying the burnt trash deposit (SIHP #-7189), overlying salt pan remnants (SIHP #-7190) and/or Jaucas sand atop the limestone coral shelf and natural marine clay (Figure 281, Figure 282, and Table 57).

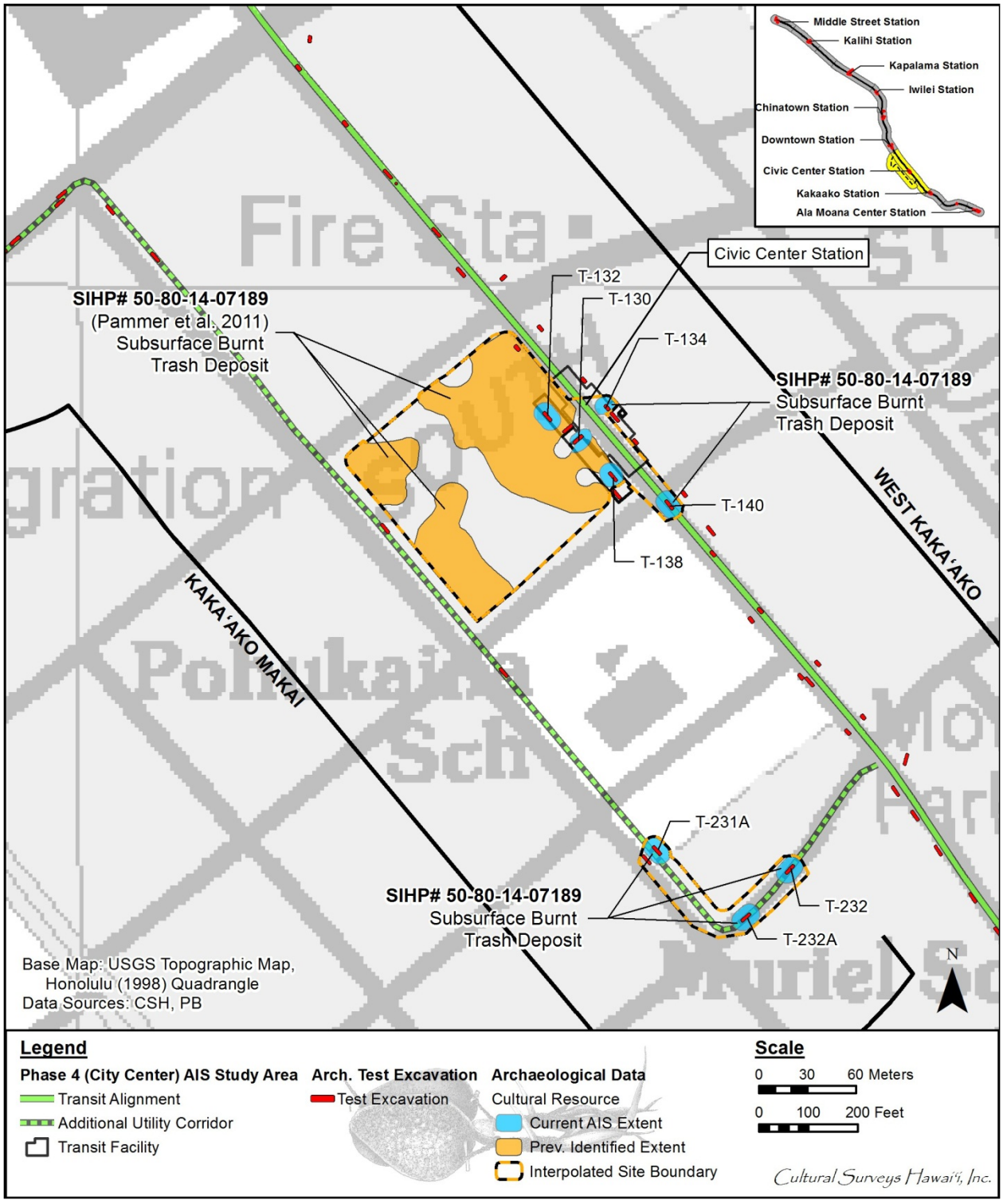

Figure 278. Location of SIHP #-7189 within the West Kaka‘ako and Kaka‘ako Makai Geographic Zones (base map: USGS 1998 Topographic Map of Honolulu Quadrangle)

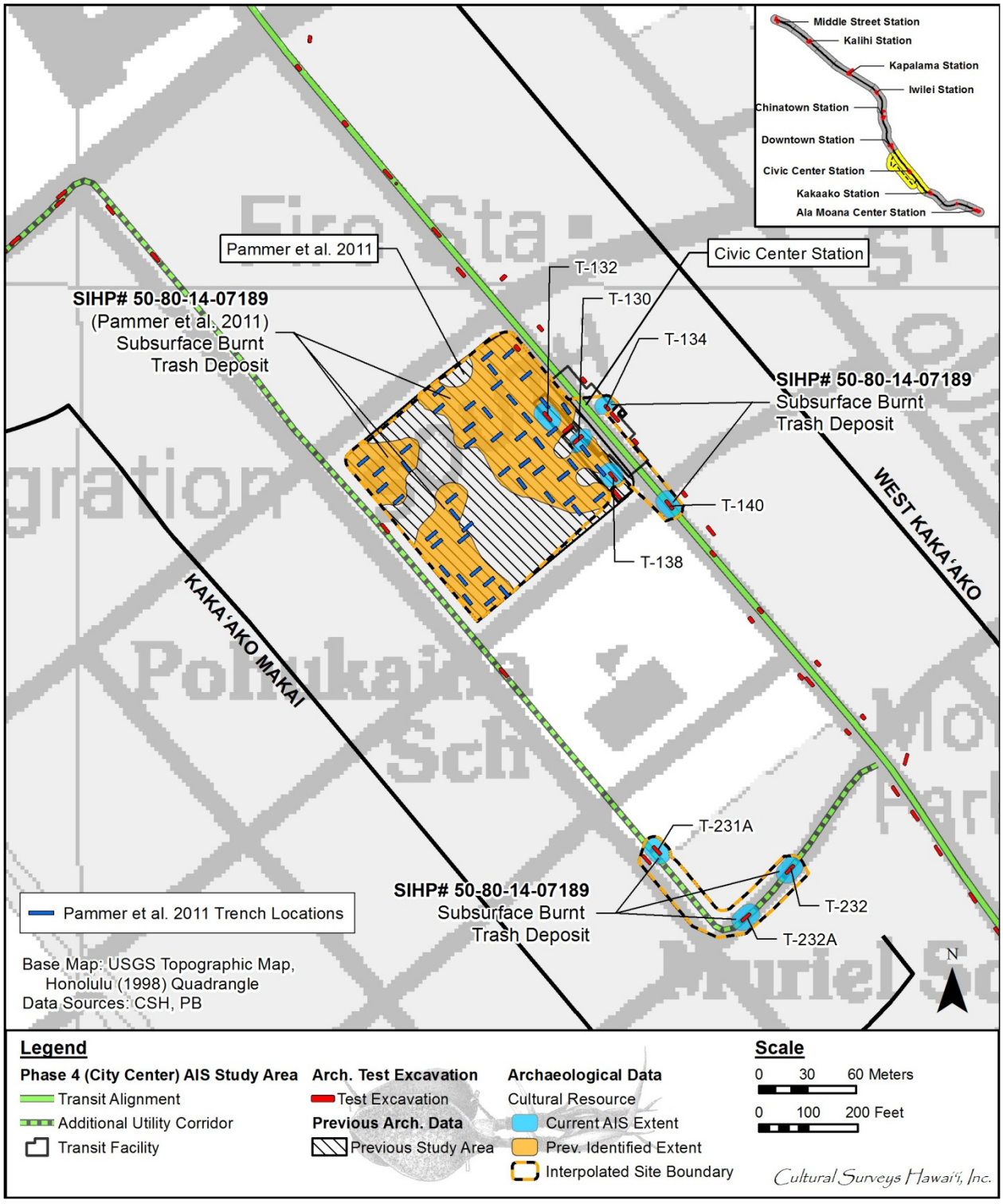

Figure 279. Location of SIHP #-7189 and the Pammer et al. (2011) study area within the West Kaka‘ako and Kaka‘ako Makai Geographic Zones (base map: USGS 1998 Topographic Map of Honolulu Quadrangle)

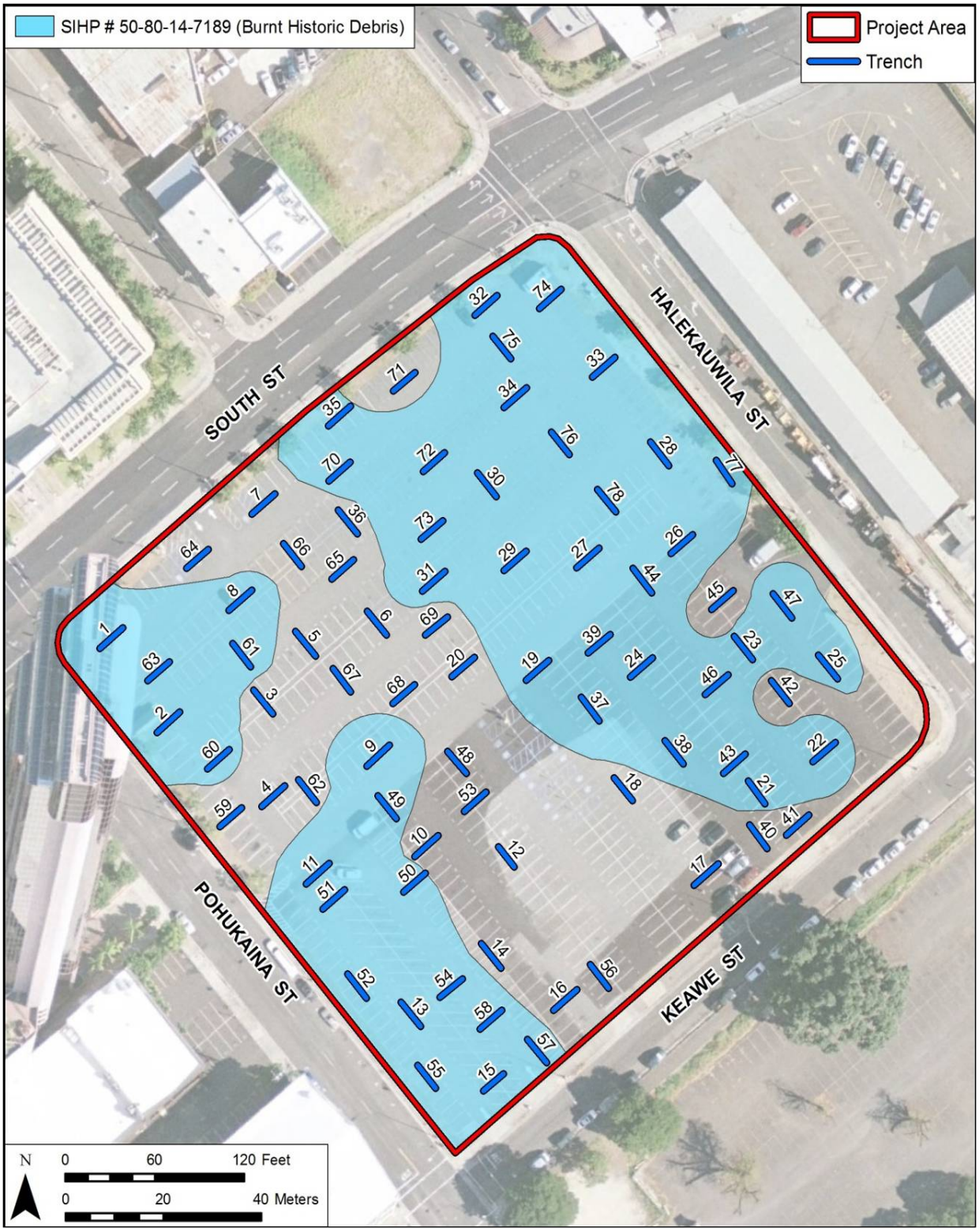

Figure 280. Aerial photograph (source: USGS Orthoimagery 2005) with an overlay of the estimated locations of SIHP #-7189 within the Pammer et al. (2011) study area

Figure 281. Northwest end of Test Trench 25 showing stratigraphic layers along southwest wall (from Pammer et al. 2011,Vol. II:106)

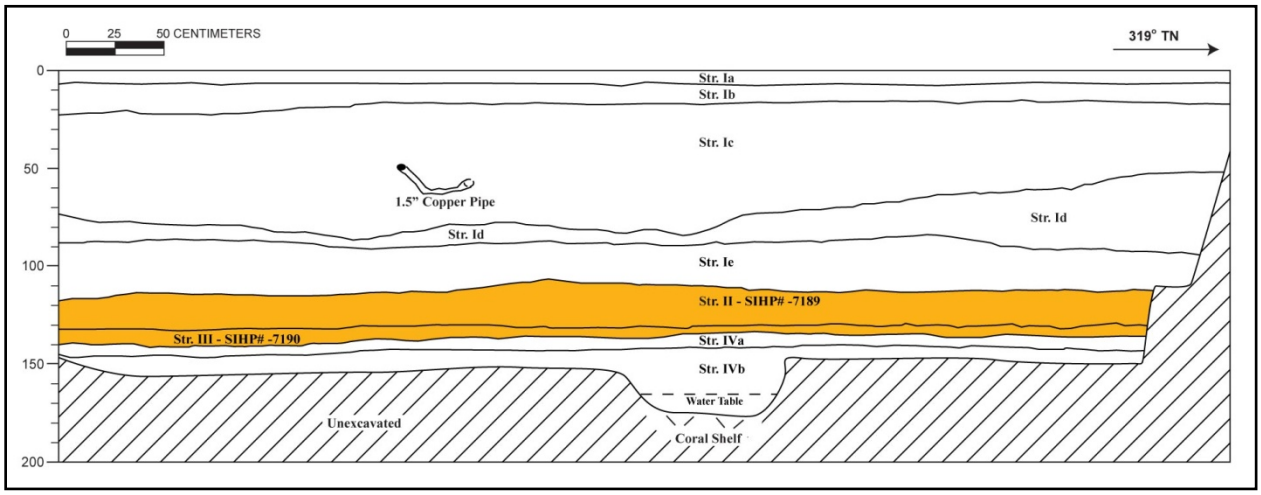

Figure 282. Pammer et al. (2011, Vol. II:104; color and label not in original) Test Trench 25 southwest wall profile, showing burnt trash layer (SIHP # -7189) overlying former salt pan deposit (SIHP # -7190)

Table 57. Stratigraphic Description of Test Trench 25 (adapted from Pammer et al. 2011, Vol. II: 102-103)

Stratum	Depth (cmbs)	Description
Ia	0-6	Asphalt; 10 YR 5/1 gray; structureless (massive); extremely hard dry consistency; indurated cementation; non-plastic; terrestrial origin; very abrupt, smooth lower boundary. Surfacing for parking lot
Ib	6-23	Fill; 10 YR 6/1 gray asphalt; structureless (massive); dry extremely hard consistency; indurated cementation; non-plastic; terrigenous origin; abrupt, smooth lower boundary. Former asphalt surfacing
Ic	15-86	Fill; 10 YR 5/3 brown silty clay loam; weak, fine, crumb structure; dry hard, moist friable consistency; non-plastic; mixed origin; abrupt, wavy lower boundary. Grading fill contains crushed coral, gravel and modern construction and domestic debris
Id	52-94	Fill; 10 YR 8/2 very pale brown crushed coral and very coarse sand; structureless (single-grain); dry loose, wet loose consistency; non-plastic; marine origin; abrupt, wavy lower boundary. Marine based fill material
Ie	86-118	Fill; 10 YR 7/3 very pale brown sandy clay with multiple mottling of 10 YR 6/1 gray clay and 10 YR 7/6 yellow sand; structureless (single-grain); moist firm, wet sticky consistency; slightly plastic; marine origin; very abrupt, smooth lower boundary. Hydraulic fill likely associated with dredging of Honolulu Harbor area for covering over Kaka‘ako wetlands
II	106-134	Fill; 10 YR 3/2 very dark grayish brown ash, clay, and burnt debris; weak, fine, crumb structure; moist firm, wet sticky consistency; plastic; terrigenous origin; abrupt, smooth lower boundary. Burnt waste from open air burning from the 1920s-1930s; landfill material overlying Kaka‘ako wetlands; component of SIHP #-7180
III	130-144	A-Horizon; 10 YR 3/4 dark yellowish brown clay loam ‘peat;’ weak, very fine, crumb structure; moist firm, wet slightly sticky consistency; non-plastic; mixed origin; diffuse, smooth lower boundary; contains high amount of fine roots; former historic surface layer, associated with the salt pans; component of SIHP # -7190
IVa	134-148	Gley 2 4/5BG dark greenish gray clay; moderate, fine, crumb structure; moist firm, wet sticky consistency; plastic; marine origin; diffuse, smooth lower boundary. Natural marine deposited clay
IVb	140-175 (BOE)	Gley 2 5/5BG greenish gray clayey sand; structureless (single-grain); moist very friable, wet non-sticky consistency; non-plastic; marine origin; abrupt, smooth lower boundary. Natural (marine) clayey sand deposit overlying hard coral shelf, groundwater level at 178 cmbs

Historic artifacts observed during the Pammer et al. (2011) study consisted of various glass bottles, ceramic vessels, and butchered faunal remains. The glass bottles dated up to 1920. The ceramic assemblage largely consisted of British and Asian exported items dated to the late 1800s to early 1900s (Figure 283 to Figure 286).

During the current City Center AIS, a buried burnt trash deposit was identified in eight test excavations (T-130, T-132, T-134, T-138, T-140, T-231A, T-232, and T-232A) located within the West Kaka‘ako and Kaka‘ako Makai Geographic Zones. In general, the stratigraphic sequences within the eight test excavations were consistent with the Pammer et al. (2011) study. They included natural marine sediment at the base of excavation underlying the burnt trash layer (SIHP #-7189) and between four to seven additional overlying fill strata (Figure 287 to Figure 289 and Table 58). The subsurface burnt trash deposit was located within fill material that consisted of variations of black silty clays, sandy clays, silty loams, sandy loams, and clay loams. These deposits ranged in depth between 0.65 to 1.40 mbs.

The burnt trash deposit observed during the current City Center AIS contained a large quantity of glass bottles, ceramics, metal, miscellaneous items, and cut faunal bone. A total of 75 ceramic fragments were collected, representing 63 vessels, along with 74 glass bottles or bottle fragments. These materials dated from the late 1800s to early 1900s and included both Asian and Euro-American imports. A complete catalogue of cultural material collected from T-130, T-132, T-134, T-138, T-140, T-231A, T-232, and T-232A is presented in Volume V.

SIHP #-7189 is a previously-identified subsurface burnt trash deposit that was identified in 49 test excavations during the Pammer et al. (2011) study and eight test excavations (T-130, T-132, T-134, T-138, T-140, T-231A, T-232, and T-232A) during the current City Center AIS. The burnt trash deposit identified during the current study has been combined with the SIHP #-7189 trash deposit identified by Pammer et al. (2011) based upon similarities in their depositional sequence, stratigraphic location, content, and proximity. The total area of this cultural resource is approximately 6.32 acres and centers within or near the current urban block bounded by Halekauwila, Keawe, Pohukaina, and South Streets. Pammer et al. (2011) identified SIHP #-7189 at depths ranging from 0.4 to 1.8 mbs while the current AIS study identified SIHP #-7189 at depths ranging from 0.65 to 1.40 mbs. Both studies identified SIHP # -7189 beneath historic and modern fill deposits and atop natural sediments overlying the coral shelf. The burnt trash deposit consists of large quantities of glass bottles, ceramics, metal, and cut faunal bone within a sediment matrix that varies among black silty clays, sandy clays, silty loams, sandy loams, and clay loams. Historic artifacts collected from SIHP #-7189 date from the late 1800s to early 1900s. The burnt trash within SIHP #-7189 may be associated with open-air trash burning that occurred during the late nineteenth to early twentieth century. The subsurface burnt trash layer likely was deposited in the early twentieth century (ca. 1920s to 1930s) when low-lying areas in Kaka‘ako were infilled to advance urban development.

Based on the guidance of the National Register Bulletin No. 15, SIHP # 50-80-14-7189 retains its integrity of location, design, and materials. SIHP #-7189 was previously determined eligible to the Hawai‘i Register under Criterion A (associated with events that have made an important contribution to the broad patterns of our history) and Criterion D (has yielded, or is likely to yield information important for research on prehistory or history). Based on the results of the current archaeological inventory survey, and in consultation with SHPD, CSH

Figure 283. Sample of ink, household (i.e., shoe blackening, Acc. #138.1), and cosmetic/toiletry bottles collected from SIHP # -7189 during the Pammer et al. (2011, Vol. I:249) study

Figure 284. Sample of spirits and bitters bottles collected from SIHP # -7189 during the Pammer et al. (2011, Vol. I:249) study

Figure 285. Sample of food and medicine bottles collected from SIHP # 7189 during the Pammer et al. (2011,Vol. I:250) study

Figure 286. Sample of soda and mineral water bottles collected from SIHP # -7189 during the Pammer et al. (2011, Vol. I,:251) study

Figure 287. Northwest end of T-231A showing burnt trash deposit (SIHP #-7189), view to northwest

Figure 288. T-231A southwest profile, view to south

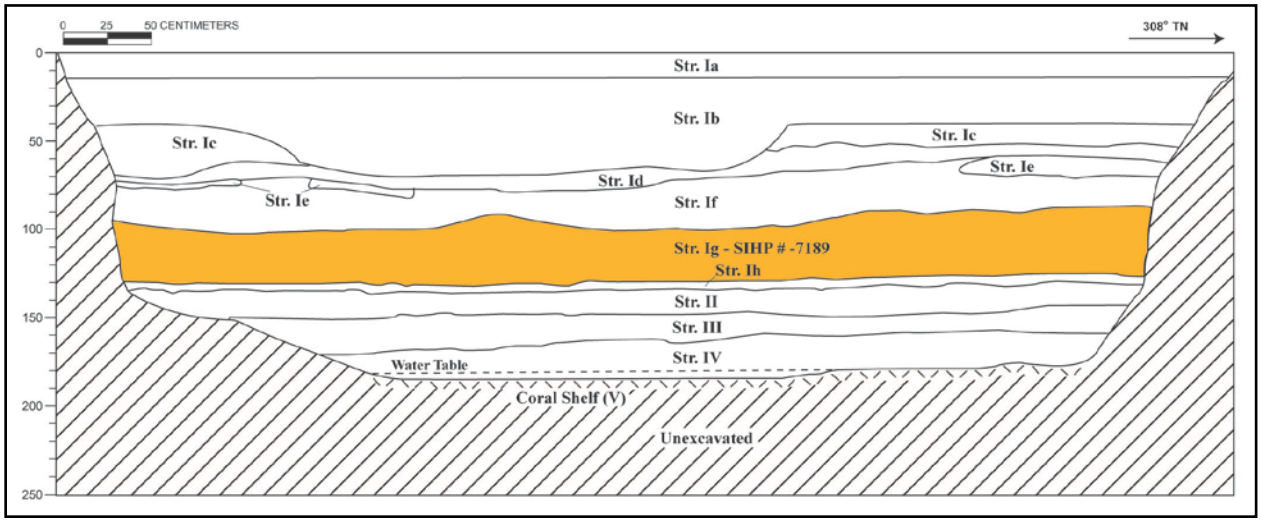

Figure 289. T-231A southwest profile, showing burnt trash deposit (SIHP # -7189) within fill sequence above natural sediments and coral shelf

Table 58. T-231A Stratigraphic Description

Stratum	Depth (cmbs)	Description
Ia	0-15	Asphalt
Ib	15-70	Fill; 10 YR 5/2 (grayish brown); extremely gravelly silty loam; structureless, single-grain; moist, loose consistency; non-plastic, terrigenous origin; abrupt, smooth lower boundary; gravel base course
Ic	42-72	Fill; 10 YR 8/2 (very pale brown); very gravelly sandy loam; structureless, single-grain; moist, friable consistency; non-plastic; mixed origin; very abrupt, smooth lower boundary; contained faunal fragments; crushed coral
Id	63-75	Fill; 10 YR 4/2 (dark grayish brown); silty loam; weak, very fine, crumb structure; moist, friable consistency; non-plastic; terrigenous origin; abrupt, smooth lower boundary; contained faunal fragments
Ie	57-82	Fill; 10 YR 2/1 (black); gravelly sandy loam; weak, fine, crumb structure; moist, friable consistency; non-plastic; terrigenous origin; abrupt, broken/discontinuous lower boundary
If	61-103	Fill; 10 YR 3/2 (very dark grayish brown); sandy loam; weak, fine, crumb structure; moist, friable consistency; non-plastic; mixed origin; abrupt, smooth lower boundary
Ig	91-132	Fill; 10 YR 2/1 (black); sandy clay loam; structureless, single-grain; moist, friable; mixed origin; clear, smooth lower boundary; contains glass bottles, faunal bone, fabric, wood, and shoe soles; burned trash layer; component of SIHP #-7189
Ih	132-136	Fill; 10 YR 2/1 (black); silty clay loam; structureless, massive; moist, friable to firm consistency; slightly plastic; terrigenous origin; abrupt, smooth lower boundary
II	136-150	Natural; 10 YR 8/4 (very pale brown); silty sand; structureless, single-grain; moist, very friable consistency; non-plastic; marine origin; clear, smooth lower boundary
III	150-168	Natural; 2.5 Y 8/2 (pale yellow); very gravelly to cobbly loamy sand; structureless, single-grain; moist, friable to firm consistency; non-plastic; marine origin; clear, smooth lower boundary; decomposing coral shelf
IV	168-185 (BOE)	Natural; GLEY 5GY 7/1 (light greenish gray); very gravelly loamy sand; structureless, single-grain; moist, firm consistency; non-plastic; mixed origin; decomposing coral shelf; lower boundary not visible

recommends that SIHP #-7189 does not possess significance under Criterion A for either the Hawai‘i and National Registers. Accordingly, CSH recommends that this cultural resource maintains the integrity to support its historic significance only under Criterion D of the Hawai‘i Register and recommends eligibility to the National Register only under Criterion D, exclusively for its information potential.

SIHP # 50-80-14-7189 has provided information, and can potentially provide additional information, on nineteenth to early twentieth century material goods and early twentieth century land reclamation efforts. The potential for further identification and impact of additional exposures of subsurface burnt trash deposits within the current project APE warrants implementation of an archaeological monitoring program. Archaeological monitoring will recover data on all locations of SIHP #-7189 encountered during construction. If encountered documentation will include plan and/or profile maps, GPS locations, photographs, and sample collection. These data will be used to better characterize the content and depositional age of SIHP #-7189 and facilitate comparisons with other trash disposal features.

5.3.10 SIHP #50-80-14-7190

FORMAL TYPE:	Subsurface salt pan remnants
FUNCTION:	Salt production
PREVIOUS DOCUMENTATION:	Pammer et al. (2011)
NUMBER OF FEATURES:	N/A
TYPES OF FEATURES:	N/A
AGE:	Potentially pre- and post-Contact
DISTRIBUTION:	Approximately 0.05 acres (within current project area), 1.15 acres (total area)
LOCATION:	Southwest (*makai*) of Halekauwila Street, between Keawe and South Streets (West Kaka‘ako and Kaka‘ako Makai Geographic Zones) Pammer et al. (2011), within City and County road way of Pohukaina Street (current investigation)
TAX MAP KEY:	TMK [1] 2-1-030 (Pohukaina Street ROW por.); [1] 2-1-051 (Pohukaina Street ROW por.); [1] 2-1-030:001 and :043
LAND JURISDICTION:	Kamehameha Schools; City and County of Honolulu
TEST EXCAVATIONS:	T-229 and T-230

SIHP #50-80-14-7190 consists of previously-identified subsurface salt pan remnants (including possible berms) located southwest (*makai*) of Halekauwila Street, between South and Keawe Streets within the West Kaka‘ako and Kaka‘ako Makai Geographic Zones (Figure 290). This archaeological cultural resource was first identified by Pammer et al. (2011) during an archaeological inventory survey for the Block 2 Parking Lot located between the HHCTCP alignment along Halekauwila Street and an additional HHCTCP utility corridor along Pohukaina Street, as well as a portion of the Civic Center Station footprint (Figure 291). SIHP #-7190 was also identified within T-229 and T-230 of the current City Center AIS.

Background information and historic maps indicate early historic salt production in Kaka‘ako and the use of salt pans. Captain Cook was the first to note the method of making salt in prepared salt pans.

> Amongst their arts, we must not forget that of making salt, with which we were amply supplied, during our stay at these islands, and which was perfectly good of its kind. Their saltpans are made of earth, lined with clay; being generally six or eight feet square, and about eight inches deep. They are raised upon a bank of stones near the high-water mark, from whence the salt water is conducted to the foot of them, in small trenches, out of which they are filled, and the sun quickly performs the necessary process of evaporation. . . . Besides the quantity we used in salting pork, we filled all our empty casks, amounting to sixteen puncheons, in the Resolution only. [Cook 1784:151]

An 1838 sketch by Auguste Borget titled “Honolulu Salt Pan, near Kaka‘ako,” illustrates long, linear salt pans adjacent to habitation structures (Figure 292).

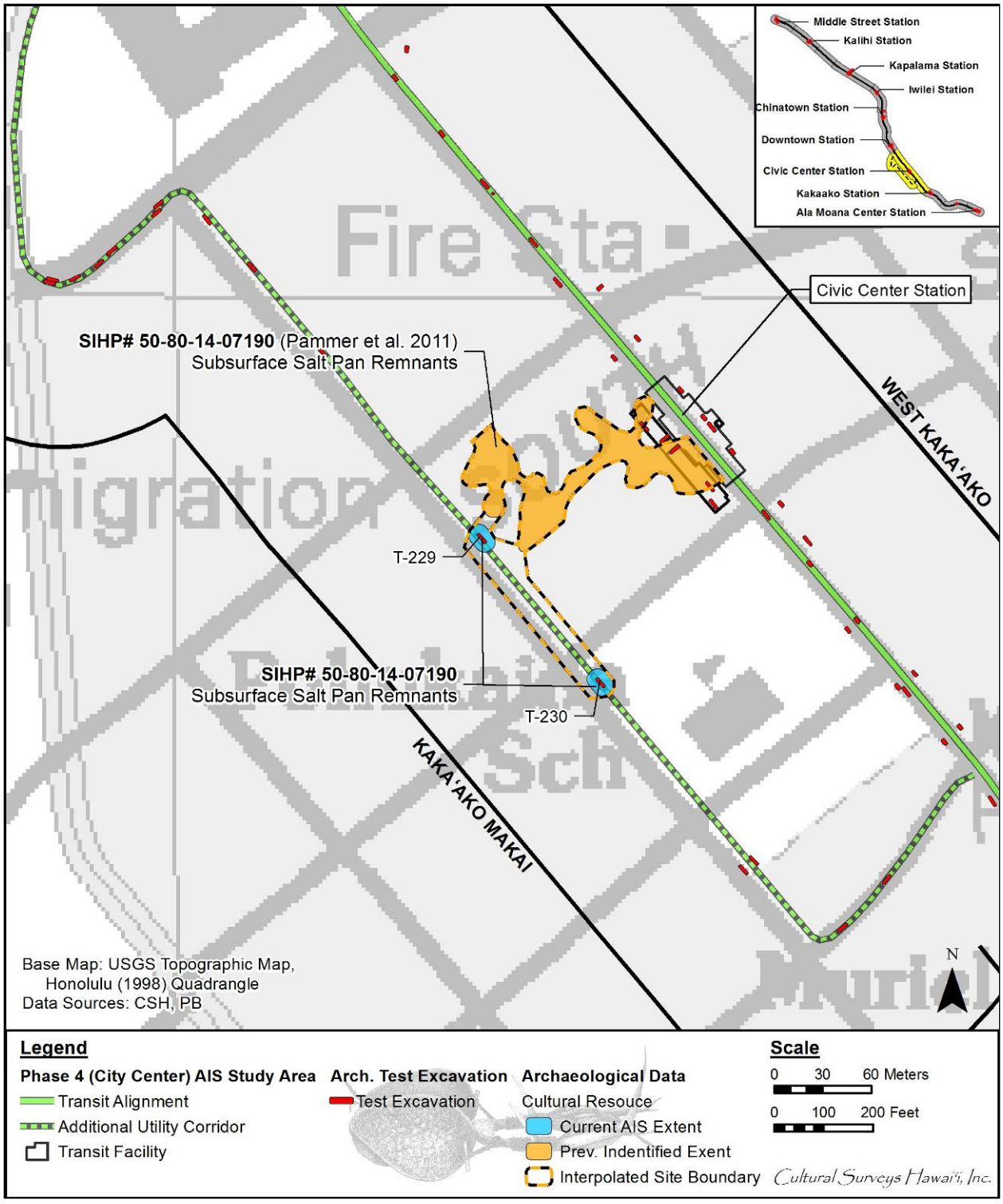

Figure 290. Location of SIHP #-7190 within the West Kaka‘ako and Kaka‘ako Makai Geographic Zones (base map: USGS 1998 Topographic Map of Honolulu Quadrangle)

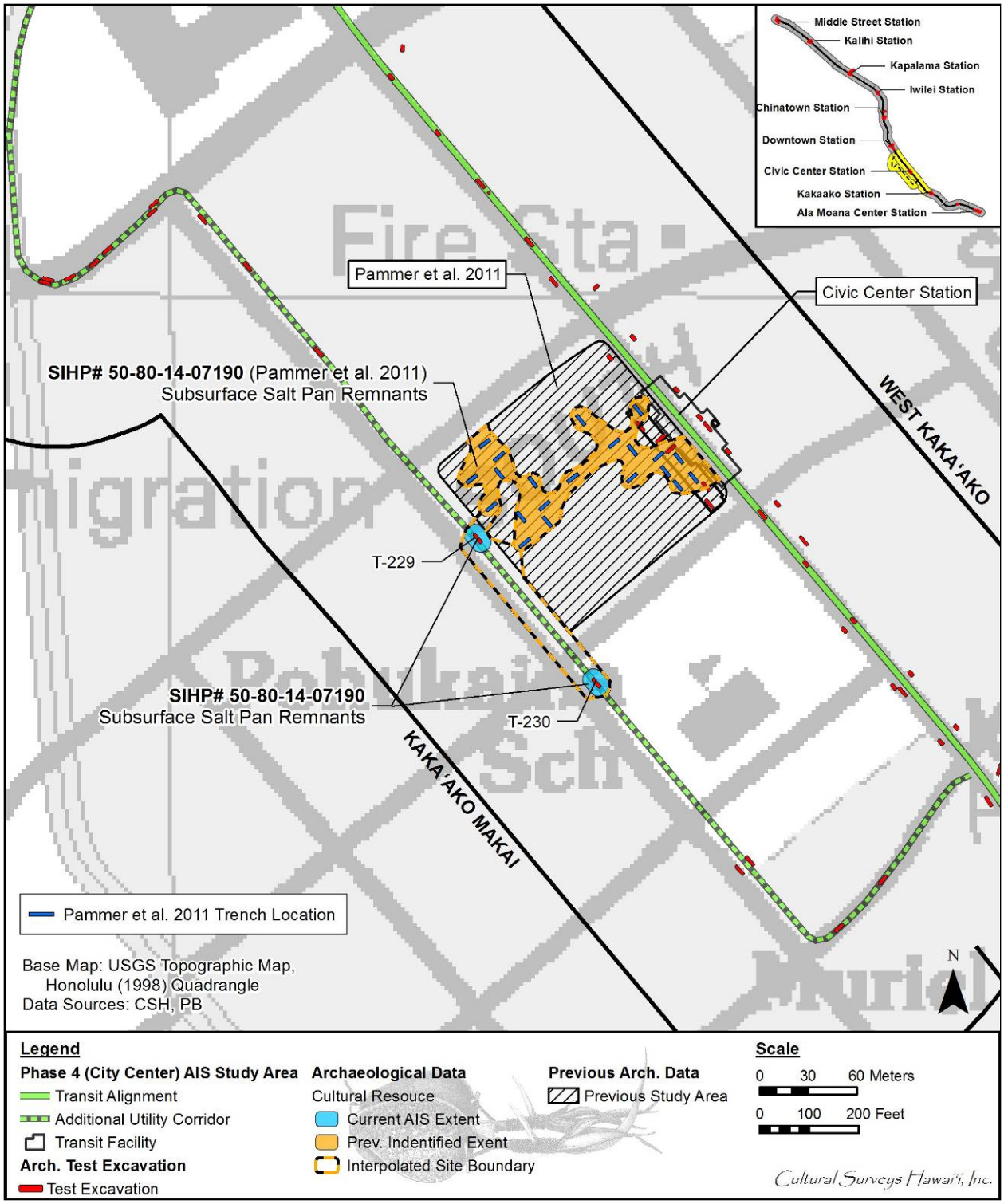

Figure 291. Location of SIHP #-7190 and the Pammer et al. (2011) study area within the West Kaka‘ako and Kaka‘ako Makai Geographic Zones (base map: USGS 1998 Topographic Map of Honolulu Quadrangle)

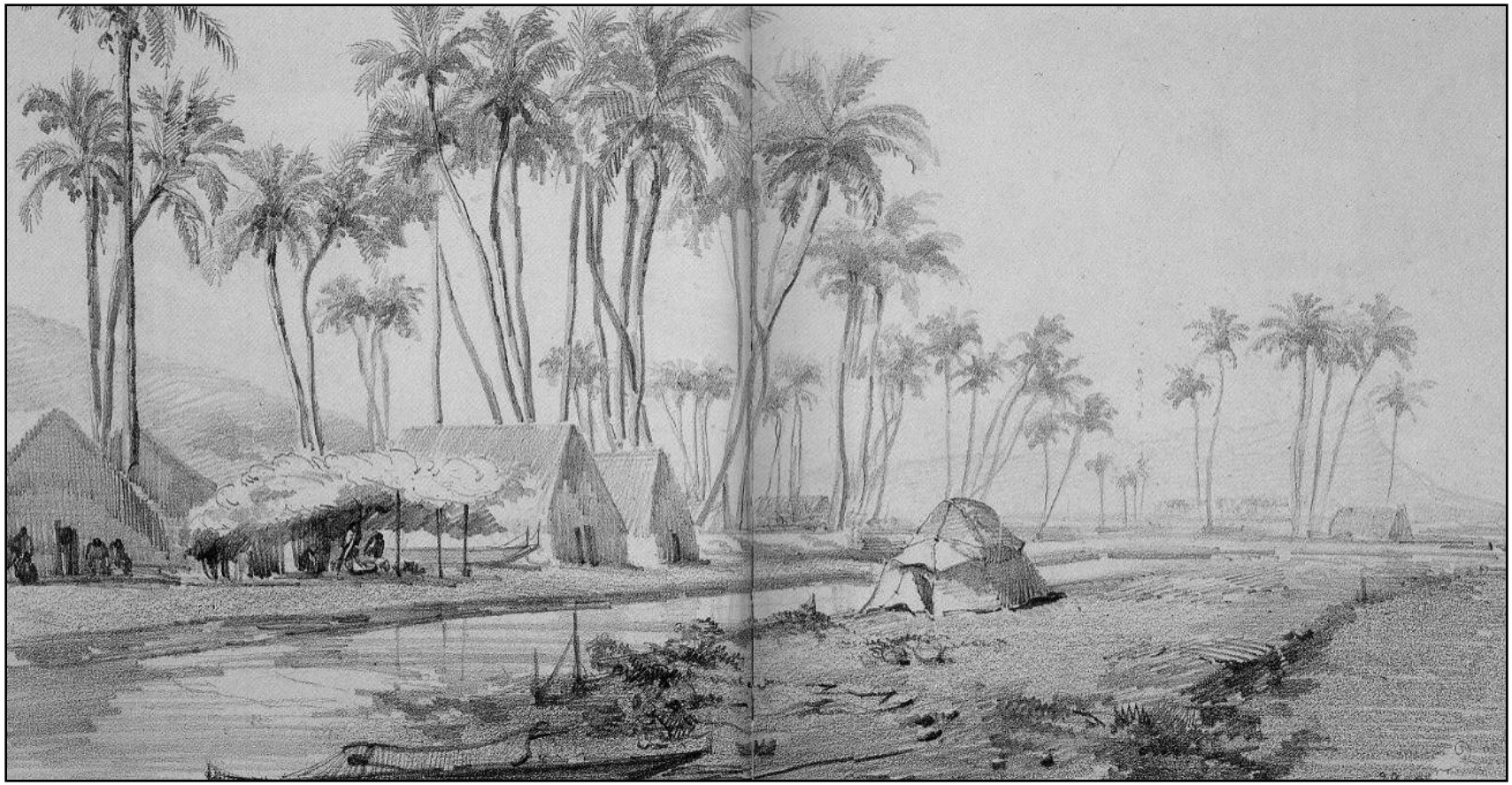

Figure 292. 1838 sketch of “Honolulu Salt Pan, near Kaka‘ako” drawn by a French visitor, Auguste Borget (original sketch at Peabody Essex Museum, Salem, Massachusetts; reprinted in Grant 2000:64-65)

The 1876 Lyons map of Honolulu depicts 17.6 acres of salt pans that include the majority of the SIHP #-7190 interpolated boundary (Figure 293). Salt pans also are depicted to the northwest and southwest of SIHP #-7190, indicating extensive salt production in the immediate vicinity. In an article on Hawaiian salt works, Thomas Thrum mentions a salt works in Kaka‘ako:

> Honolulu had another salt-making section in early days, known as the Kakaako salt works, the property of Kamehameha IV, but leased to and conducted by E. O. Hall, and subsequently E. O. Hall & Son, until comparatively recent years. This enterprise was carried on very much after the ancient method of earth saltpans as described by Cook and Ellis. [Thrum 1924:116]

Pammer et al. (2011) identified buried salt pan remnants in 21 of 78 test excavations (Figure 294 and Figure 295). The buried salt pan remnants were designated Stratum II in Trench 62; Stratum III in Trenches 11, 24, 25, 27, 28, 30, 47, 60, 63, 64, and 67; Stratum IIIa in Trench 42; Stratum IIIb in Trenches 8, 9, and 20; Stratum IIIc in Trench 45; and Stratum IV in Trenches 23, 44, 49, 61. The salt pan remnants occurred at depths ranging from approximately 1.3 mbs to 1.65 mbs.

The general depositional sequence within test excavations containing SIHP #-7190 consisted of hydraulic fill, and numerous fill strata related to historic and modern land reclamation and urban development atop a burnt trash deposit (SIHP #-7189), atop salt pan remnants (SIHP #-7190), atop the coral shelf and marine sand or lagoonal deposits. Trench 25 by Pammer et al. (2011) illustrates the general depositional sequence above and below the salt pan sediments designated SIHP #-7190 (Figure 296, Figure 297, and Table 59).

Pammer et al. (2011:239) described SIHP #-7190 as follows:

> SIHP #50-80-14-7190 consists of alternating layers of clay and peat, associated with the pre and post-contact salt pans previously located within the project area. The exact extent of SIHP #50-80-14-7190 is unclear, as the layer is broken and discontinuous, and it is likely that it extends outside of the project area boundary.
>
> This A-horizon was typically observed directly overlying the natural marine clay (gley) and commonly at the same level as the water table, if not slightly below it. The striations of clay and peat suggest that this area was repeatedly used as a land surface which was exposed long enough to accumulate organic debris before being covered with clay. Based on research of the project area, it is suggested that this A-horizon is the result of the repeated flooding, drying, scraping and removal of salt during salt production. The clay observed within the peat may have been deliberately placed on the bottom of the salt bed to prevent the salty water from soaking into the ground.

Pammer et al. (2011) reported that wet screening of samples collected from the peat portion of the salt pan remnants yielded organics including two terrestrial snail shells, rootlets, small seeds, and other miscellaneous plant material. They also indicated the small black seeds appeared to come from the *‘Akulikuli* plant or the *olonā* plant (*Touchardia latifolia*).

During the current City Center AIS, a natural silty clay deposit containing lenses of peat was identified within T-230 between 1.10 mbs and 1.37 mbs (Figure 298, Figure 299, and Table 60). T-230 was located approximately 76 meters southeast of the SIHP #-7190 cultural resource

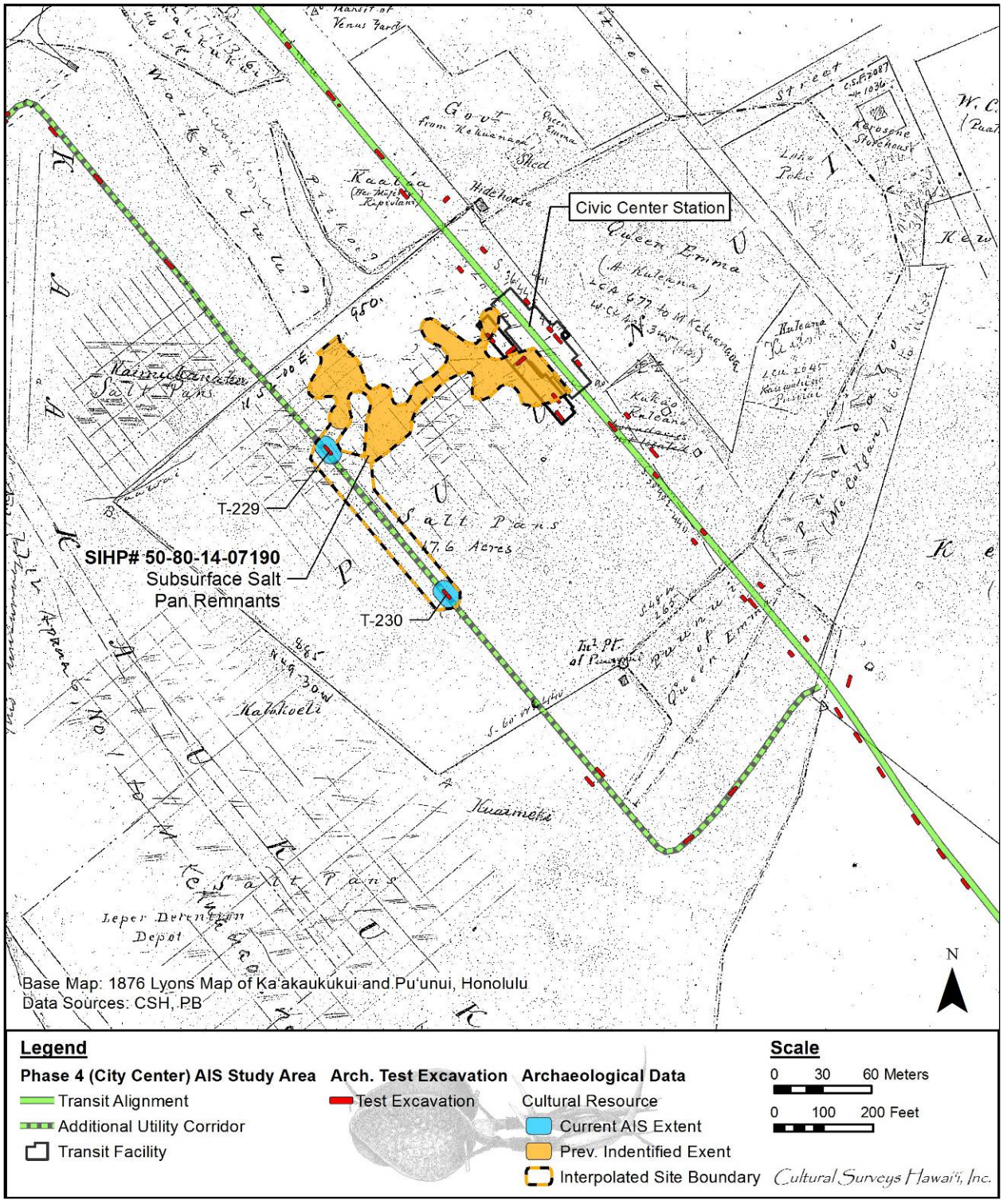

Figure 293. 1876 Lyons map of Honolulu showing salt pans within the SIHP #-7190 cultural resource boundary as well as within the surrounding area

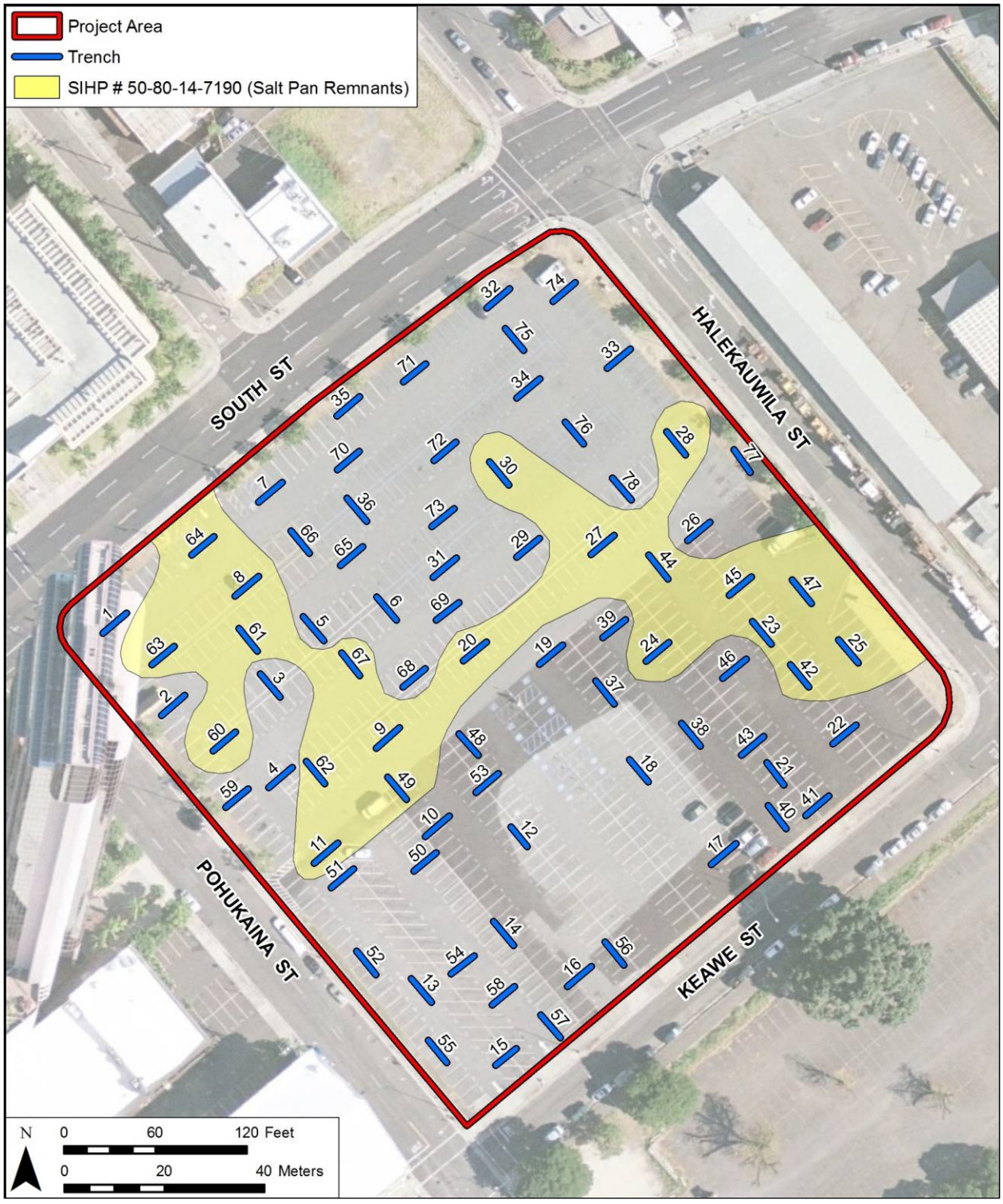

Figure 294. An aerial photograph (source: USGS Orthoimagery 2005) with an overlay of the estimated locations of SIHP #-7190 based on the Pammer et al. (2011, Vol. I:240) study

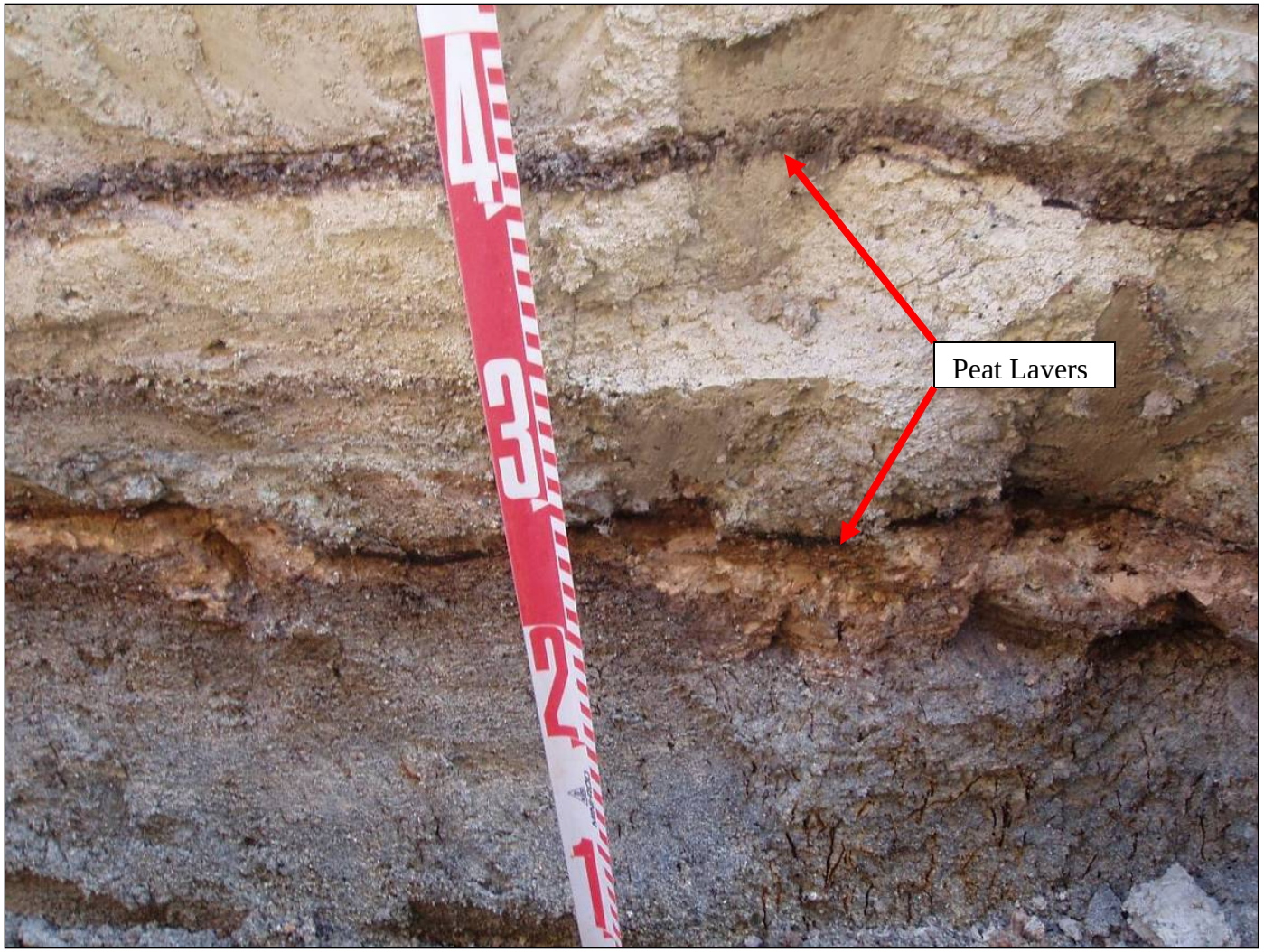

Figure 295. Representative photograph showing alternating clay and peat layers within Trench 45, view to northwest (Pammer et al. 2011, Vol. I:241)

Figure 296. Test Trench 25 southwest wall, view to northwest (Pammer et al. 2011,Vol. II:106)

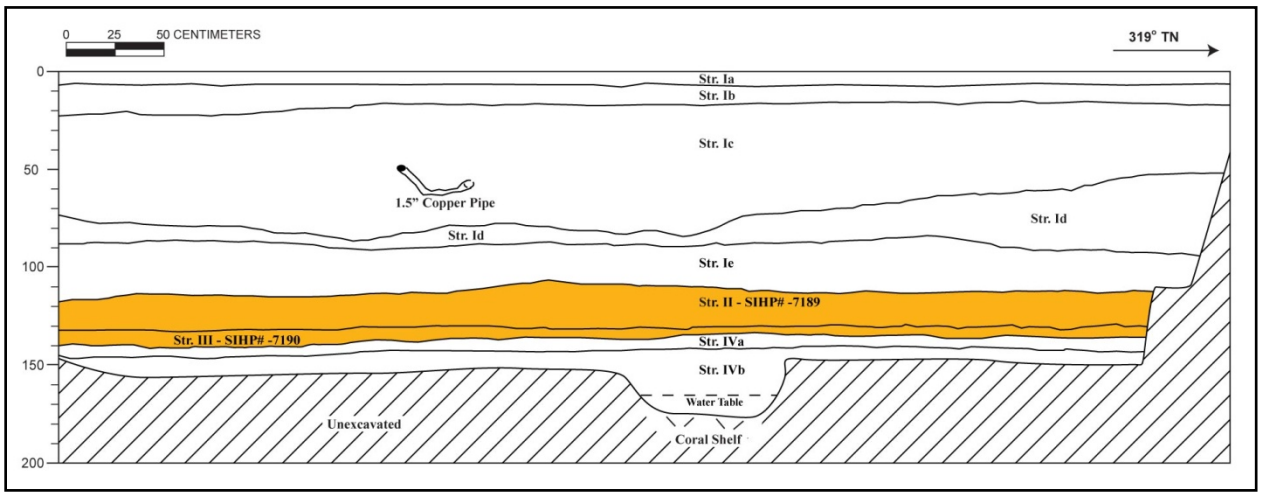

Figure 297. Pammer et al. (2011, Vol. II:104; color not in original) Test Trench 25 southwest wall profile, showing salt pan deposit (SIHP # -7190) overlying natural clay deposits (Strata IVa and IVb)

Table 59. Stratigraphic Description of Test Trench 25 (adapted from Pammer et al. 2011)

Stratum	Depth (cmbs)	Description
Ia	0-6	Asphalt; 10 YR 5/1 gray; structureless (massive); extremely hard dry consistency; indurated cementation; non-plastic; terrestrial origin; very abrupt, smooth lower boundary. Surfacing for parking lot
Ib	6-23	Fill; 10 YR 6/1 gray asphalt; structureless (massive); dry extremely hard consistency; indurated cementation; non-plastic; terrigenous origin; abrupt, smooth lower boundary. Former asphalt surfacing
Ic	15-86	Fill; 10 YR 5/3 brown silty clay loam; weak, fine, crumb structure; dry hard, moist friable consistency; non-plastic; mixed origin; abrupt, wavy lower boundary. Grading fill contains crushed coral, gravel and modern construction and domestic debris
Id	52-94	Fill; 10 YR 8/2 very pale brown crushed coral and very coarse sand; structureless (single-grain); dry loose, wet loose consistency; non-plastic; marine origin; abrupt, wavy lower boundary. Marine based fill material
Ie	86-118	Fill; 10 YR 7/3 very pale brown sandy clay with multiple mottling of 10 YR 6/1 gray clay and 10 YR 7/6 yellow sand; structureless (single-grain); moist firm, wet sticky consistency; slightly plastic; marine origin; very abrupt, smooth lower boundary. Hydraulic fill likely associated with dredging of Honolulu Harbor area for covering over Kaka‘ako wetlands
II	106-134	Fill; 10 YR 3/2 very dark grayish brown ash, clay, and burnt debris; weak, fine, crumb structure; moist firm, wet sticky consistency; plastic; terrigenous origin; abrupt, smooth lower boundary. Burnt waste possibly from open air burned debris from 1920s; used as landfill material for covering over Kaka‘ako wetlands; component of SIHP # -7189
III	130-144	A-Horizon; 10 YR 3/4 dark yellowish brown clay loam ‘peat’; weak, very fine, crumb structure; moist firm, wet slightly sticky consistency; non-plastic; mixed origin; diffuse, smooth lower boundary; contains high amount of fine roots. Possible former historic surface layer associated with the salt pans; component of SIHP # 7190
IVa	134-148	Gley 2 4/5BG dark greenish gray clay; moderate, fine, crumb structure; moist firm, wet sticky consistency; plastic; marine origin; diffuse, smooth lower boundary. Natural marine deposited clay
IVb	140-175 (BOE)	Gley 2 5/5BG greenish gray clayey sand; structureless (single-grain); moist very friable, wet non-sticky consistency; non-plastic; marine origin; abrupt, smooth lower boundary. Natural (marine) clayey sand deposit overlying hard coral shelf, groundwater level at 178 cmbs

Figure 298. T-230, Stratum II clay and peat salt pan sediments (SIHP #-7190), view to northeast

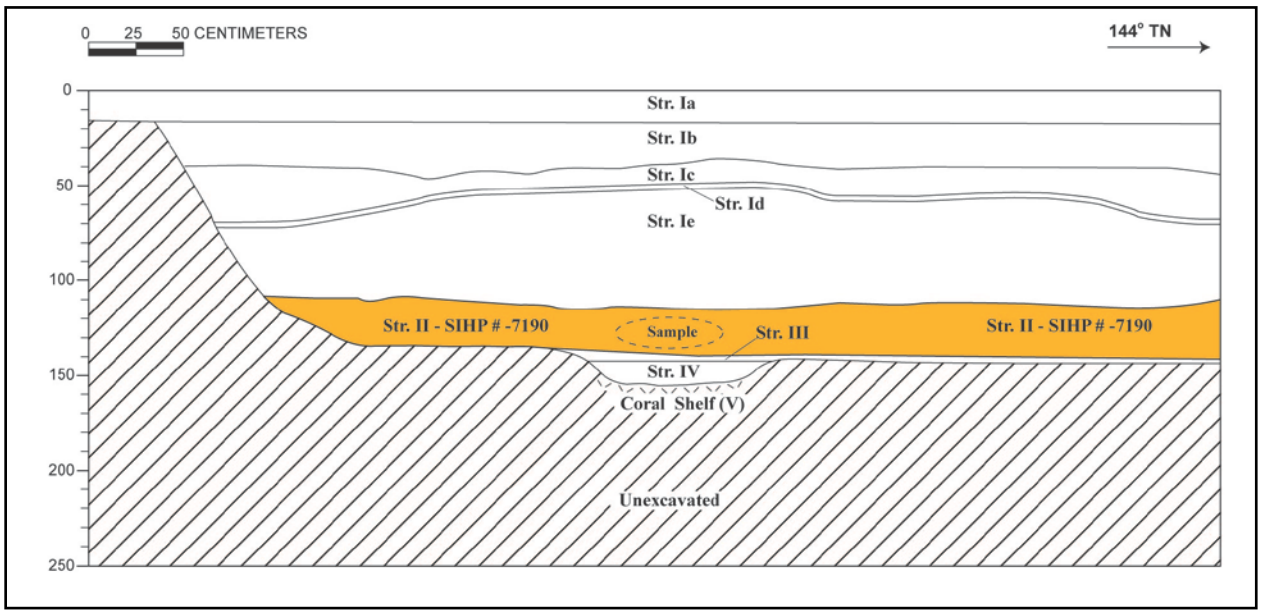

Figure 299. T-230 northeast wall profile, showing Stratum II salt pan sediments (SIHP #-7190)

Table 60. Stratigraphic description for northeast profile in T-230

Stratum	Depth (cmbs)	Description
Ia	0–16	Asphalt
Ib	16–46	Fill; 10 YR 5/1 (gray); extremely gravelly loam; structureless, single-grain; moist, loose consistency; non-plastic, terrigenous origin; abrupt, smooth lower boundary; gravel base course
Ic	37–70	Fill; 10 YR 6/2 (light brownish gray), extremely gravelly sand; structureless; moist, loose consistence; non-plastic; marine origin; abrupt smooth lower boundary; crushed coral fill
Id	47–70	Fill; 10 YR 7/2 (light gray); clay; structureless, massive; moist, friable consistency; plastic; marine origin; abrupt smooth lower boundary; hydraulic fill and clay lens
Ie	50–115	Fill; 10 YR 5/2 (grayish brown); extremely gravelly sand; structureless, single-grain; moist, loose consistency; slightly plastic; mixed origin; abrupt lower boundary; crushed coral basalt fill with faunal remains
II	110–137	Natural; GLEY 1 6/N (gray); silty clay; weak, very fine, blocky structure; moist, friable consistency; plastic; mixed origin; clear lower boundary; common, fine roots; low energy marshland sediments, contained lenses of peat and clay; component of SIHP #-7190
III	135–145	Natural; 10 YR 7/2 (light gray) sand; structureless, single-grain; moist, loose consistency; non-plastic; marine origin; clear smooth lower boundary
IV	145–155	Natural; 10 YR 7/4 (very pale brown); bedrock-limestone; structureless, massive; moist, weakly to strongly cemented; discontinuous consistency; non-plastic; marine origin; lower boundary not observed; decomposing coral; Pleistocene coral shelf

boundary established by Pammer et al. (2011) (see Figure 291). The silty clay with lenses of peat was designated Stratum II. This marshy deposit overlies marine sand (Stratum III) and the underlying decomposing coral shelf (Stratum IV) and coral shelf substrate (Stratum V). Numerous fill strata (Stratum Ia-Ie) overlie Stratum II. Stratum II of T-230 is consistent with the salt pan remnants described by Pammer et al. (2011).

During the current City Center AIS, a berm of sandy clay with root inclusions was identified within T-229 between 0.78 mbs and 1.35 mbs (Figure 300, Figure 301, and Table 61). T-229 was located approximately 15 m southwest of the SIHP #-7190 cultural resource boundary established by Pammer et al. (2011) (see Figure 291). The sandy clay berm was designated Stratum II and was observed overlying the coral shelf substrate (Stratum III). Asphalt and numerous fill strata (Stratum Ia-Ih) were observed overlying Stratum II. The sandy clay berm within T-229 is interpreted as a remnant salt pan-berm.

The silty clay with lenses of peat (Stratum II) in T-230 and the berm of sandy clay with root inclusions (Stratum II) in T-229 have been included within SIHP # 50-80-14-7190, the previously-identified remnants of salt pans first identified by Pammer et al. (2011). The 1876 Lyons map of Honolulu depicts salt pans present in the location of T-229 and in close proximity to T-230 (see Figure 293). The silty clay with lenses of peat (Stratum II) within T-230 is similar to the “alternating layers of clay and peat” described by Pammer et al. (2011:239) as evidence of repeated salt pan use. The depositional sequence and location of the salt pan remnants in the stratigraphic column are similar in T-229, T-230, and the Pammer et al. (2011) study. T-229 and T-230 have been combined into SIHP #-7190 based on historic documentation of salt pans in the vicinity of both test excavations and similarities to the findings of Pammer et al. (2011) including sediment description and depositional sequence.

SIHP # 50-80-14-7190 consists of previously-identified subsurface salt pan remnants identified in 21 test excavations during the Pammer et al. (2011) study and in two test excavations (T-229 and T-230) during the current City Center AIS. The salt pan remnants include alternating layers of clay and organic peat and one sandy clay berm. SIHP #-7190 was identified at depths ranging from 1.3 mbs to 1.65 mbs during the Pammer et al. (2011) study and between 0.78 mbs and 1.37 mbs during the current City Center AIS. Multiple fill strata were observed overlying the salt pan remnants including burnt trash fill and hydraulic fill strata associated with historic land reclamation as well as urban development. The salt pan remnants occur above the water table and overlie natural marine sediments and the coral shelf.

Based on the guidance of National Register Bulletin No. 15, SIHP # 50-80-14-7190 retains its integrity of location, materials, and workmanship. SIHP # 50-80-14-7190 was previously determined eligible to the Hawai‘i Register under Criterion A (associated with events that have made an important contribution to the broad patterns of our history) and D (has yielded, or is likely to yield information important for research on prehistory or history). Based on the results of the current City Center AIS, and in consultation with the SHPD, CSH recommends that SIHP # 50-80-14-7190 does not possess significance under Criterion A of either the Hawai‘i or National Registers. The salt pan remnants have been altered by historic and modern land reclamation and urban development activities. Accordingly, CSH recommends that this cultural resource maintains integrity to support historic significance only under Criterion D of the Hawai‘i Register and recommends eligibility to the National Register under Criterion D, exclusively for its information potential.

Figure 300. Photograph of T-229, showing possible salt pan berm (component of SIHP #-7190)

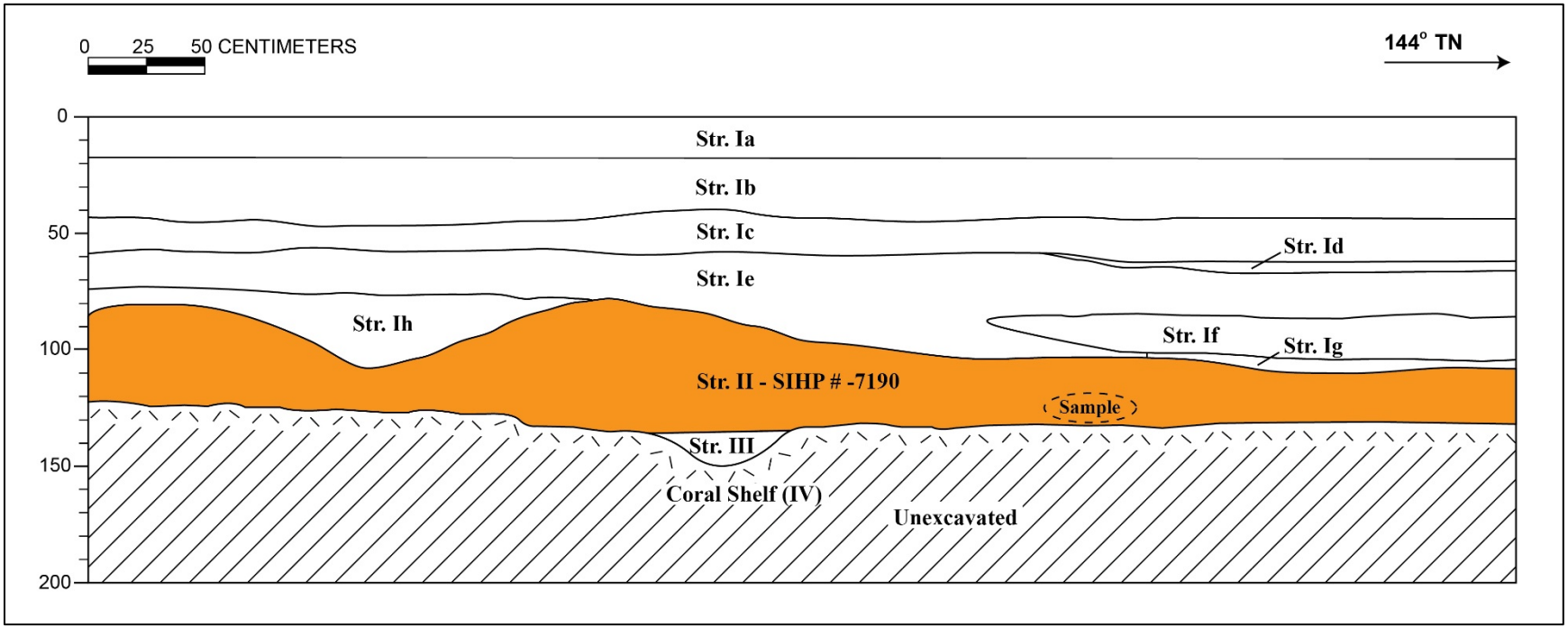

Figure 301. T-229 profile, showing a possible salt pan berm (Stratum II) designated as a component of SIHP #-7190

Table 61. Stratigraphic Description for Northeast Profile in T-229

Stratum	Depth (cmbs)	Description
Ia	0-17	Asphalt
Ib	17-47	Fill; basalt gravel; single-grain structure; abrupt, smooth lower boundary; base course
Ic	40-63	Fill; 10 YR 3/1 (very dark gray); gravelly sandy loam; structureless, single-grain; moist, very friable consistency; non-plastic; mixed origin; clear, smooth lower boundary; contained charcoal, glass and ceramic fragments, red brick; gravel and cobble inclusions, consisted of coral and basalt
Id	63-68	Fill; 10 YR 2/1 (black); structureless; burned layer; moist, very friable consistency; non-plastic; terrigenous origin; abrupt, broken/ discontinuous lower boundary; similar texture to trash layer observed in T-232
Ie	60-104	Fill; 10 YR 3/3 (dark brown); sandy clay loam; weak, fine, blocky structure; friable consistency; slightly plastic; mixed origin; clear, wavy lower boundary; contained red brick; contained small coral boulders, cobbles, and gravel
If	85-105	Fill; 10 YR 5/6 (yellowish brown) with 40%, small mottles 10 YR 3/3 (dark brown); extremely cobbly stony sandy silt; structureless, single-grain; moist, loose consistency; non-plastic; mixed origin; clear, smooth lower boundary; contained coral cobbles and small boulders, red brick, glass and ceramic fragments
Ig	100-110	Fill; GLEY 1 3/5GY (very dark greenish gray); sandy clay; massive structure; slightly sticky consistency; plastic; terrigenous origin; clear lower boundary; contained charcoal/incinerated inclusions; interface with incinerated fill layers with natural gley clay
Ih	73-107	Fill; 2.5 Y 4/3 (olive brown) with 50% very large mottles of 7.5 YR 8/2 (pinkish white), 5% mottles of GLEY 1 3/2 (very dark grayish green clay), and 5% mottles of 5 YR 4/6 (yellowish red); clay loam sandy clay; moderate, medium, blocky structure; wet, slightly stick consistency; plastic; mixed origin; abrupt lower boundary; contained wood, 2 pieces of metal pipe; fill surrounding old pipe containing coral cobbles and boulder, and burn wood; GPR read-out showed old excavation, likely for pipe
II	78-135	Natural; 2.5 Y 6/2 (light grayish brown) with mottles of GLEY 1 6/5GY (greenish gray); sandy clay; structureless, massive; moist, firm consistency; plastic; marine origin; clear, broken/discontinuous lower boundary; possible sand berm, natural layer overlying coral shelf with organic (roots) inclusions; component of SIHP #-7190
III	135-148	Natural, C-horizon; 2.5 Y 6/2 (light grayish brown); decomposing coral shelf; structureless, massive; indurated consistency; non-plastic; marine origin; lower boundary not visible; coral shelf-level

SIHP # 50-80-14-7190 has provided information, and can potentially provide additional information, related to the construction, content, and distribution of buried salt pan remnants within Kaka‘ako. The potential for additional research of SIHP # 50-80-14-7190 warrants the implementation of a data recovery program. Data recovery will emphasize further identification of the buried salt pans including a long, linear excavation within the interpolated boundary of SIHP #-7190. This linear excavation will serve to potentially expose, in profile or cross-section, the full hozizontal extent of one or more salt pans including associated raised berms (or partitions) and interior central pans or depressions. The salt pan topography exposed in the excavation walls will be mapped in detail and photographed. Data recovery also will include intensive sampling of salt pan sediments, including separate sampling of alternating layers of clay and peat. Sampling will include the collection of sediment column samples and/or sediment cores that will be incrementally partitioned (1-3 cm increments) and submitted for radiocarbon, palynological analysis, and resistivity testing. The radiocarbon data and/or palynological analysis will be used to interpret the age, content, and duration of use of the salt pan remnants comprising SIHP # 50-80-14-7190. Column samples submitted for resistivity testing will represent the uppermost, middle, and lowermost sections of salt pan sediments and, where possible, separate testing of clay and peat sediments. The uppermost, or evaporative surface, of the salt pan sediments are expected to yield a higher salinity content than the middle and lowermost sections. Following the data recovery program, an archaeological monitoring program at SIHP # 50-80-14-7190 is recommended. Archaeological monitoring will involve recovery of additional data on the depositional sequence and extent of SIHP # 50-80-14-7190 as well as of any exposed raised berms, partitions, or stratigraphic anomalies.

5.3.11 SIHP #50-80-14-7193

FORMAL TYPE:	Subsurface trash deposit
FUNCTION:	Refuse disposal and possible land reclamation
PREVIOUS DOCUMENTATION:	Burke and Hammatt (2012)
AGE:	Post-Contact (ca. 1930s to late 1950s)
NUMBER OF FEATURES:	N/A
TYPES OF FEATURES:	N/A
DISTRIBUTION:	Approximately 0.03 acres (within current project area), 0.43 acres (total area)
LOCATION:	Within a block bounded by Kapi‘olani Boulevard, Kona, Kona Iki, and Ke‘eaumoku Streets (Kālia Geographic Zone)
TAX MAP KEY:	[1] 2-3-039:011
LAND JURISDICTION:	Samkoo Pacific, LLC
TEST EXCAVATIONS:	T-214

SIHP #50-80-14-7193 consists of a previously-identified subsurface trash deposit initially identified by Burke and Hammatt (2012) during an archaeological inventory survey for a parcel located at 1391 Kapi‘olani Boulevard. SIHP #-7193 is located within a block bounded by Kapi‘olani Boulevard and Kona, Kona Iki, and Ke‘eaumoku Streets in the Kālia Geographic Zone (Figure 302).

Five of the trenches (Trenches 1-5) in the Burke and Hammatt (2012) AIS are designated as test excavations within the current City Center AIS (Figure 303) as they were placed specifically to maximize subsurface testing within or near the *mauka* portion of the Ala Moana Center Station footprint. Trenches 1 through Trench 5 (Burke and Hammatt 2012) were designated T-214, T-213, T-211, T-210, and T-209, respectively in the current AIS. Burke and Hammatt (2012) identified SIHP # -7193 in nine backhoe test excavations (Trenches 1, 14-17, and 19-22), only one (Trench 1 now T-214) of which is included in the City Center AIS.

Burke and Hammatt (2012) described the general depositional sequence within their archaeological inventory survey area (see Figure 303, Figure 304, and Table 62). The Late Pleistocene calcareous reef (coral reef) was identified at the base of excavation. No stratum designation was provided for the buried coral reef. Overlying the coral reef were natural gleyed and sandy clay layers and a buried A-horizon, all of which were sub-designated under Stratum III. The natural gleyed and sandy clay deposits are components of the Kewalo wetland sediments

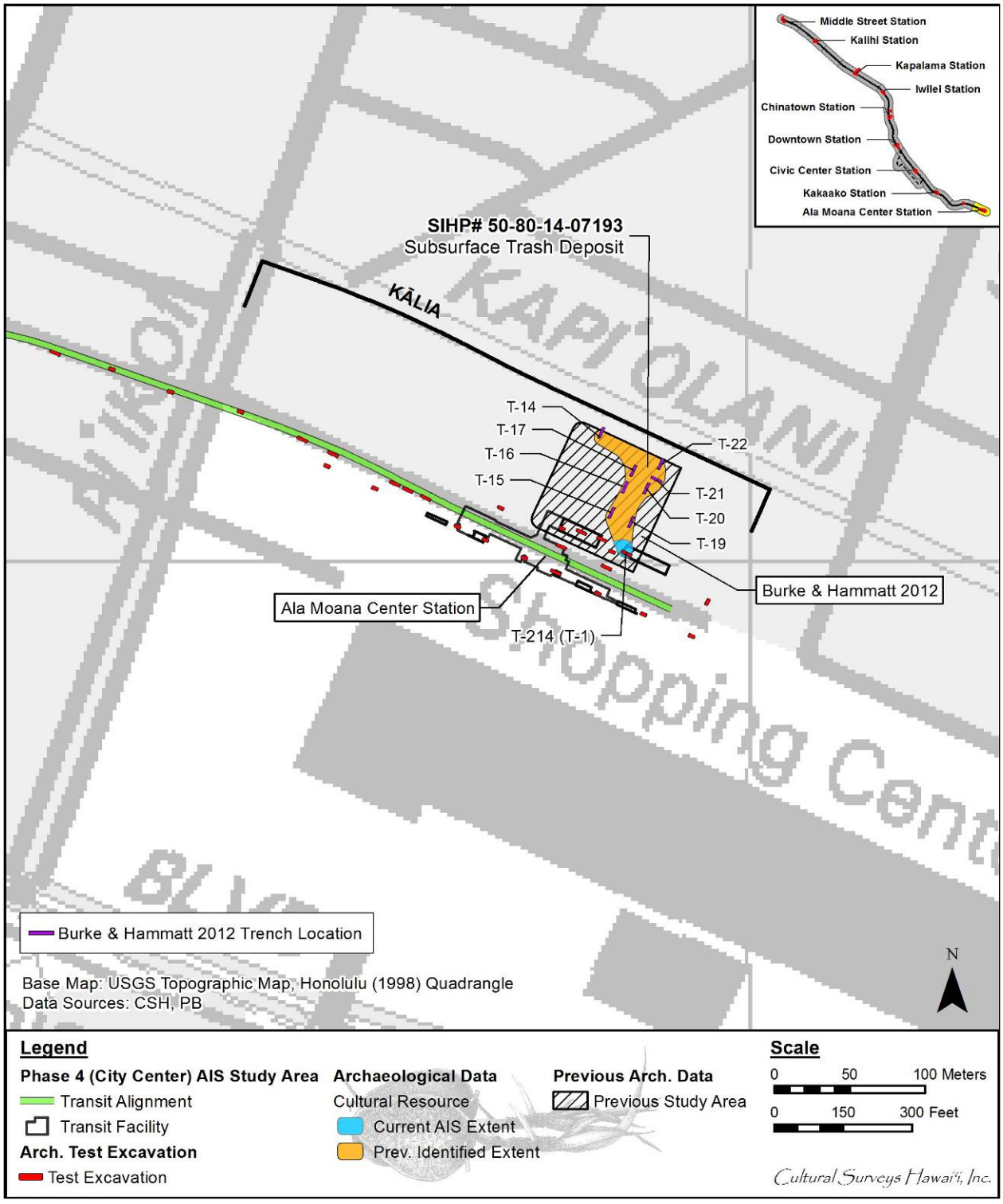

Figure 302. Locations of former- and newly-identified extents of SIHP #-7193 and the location of the Burke and Hammatt (2012) project area and trenches in the Kālia Geographic Zone (base map: 1998 USGS topographic map, Honolulu Quadrangle)

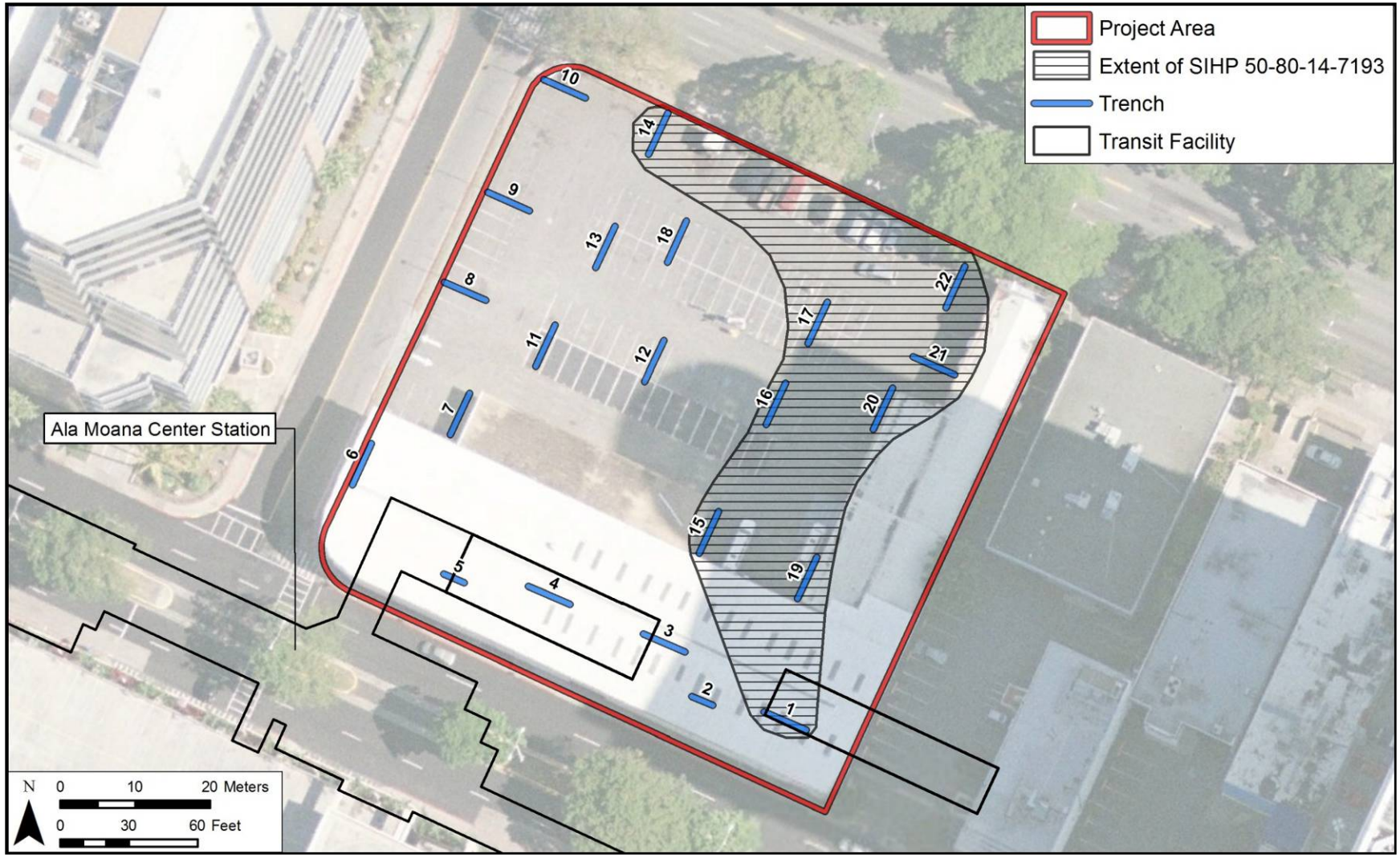

Figure 303. The location of the planned Ala Moana Center Station in relation to the Burke and Hammatt (2012) AIS project area (outlined in red), showing the extent of SIHP #-7193. Trenches 1-5 of the Burke and Hammatt (2012) study were designated as test excavations T-209, T-210, T-211, T-213, and T-214 within the current City Center AIS

Figure 304. North profile of Trench 21 (Burke and Hammatt 2012) showing historic and modern fill layers (Strata Ia-Ih) overlying the trash deposit (Stratum II; SIHP #-7193), view to north

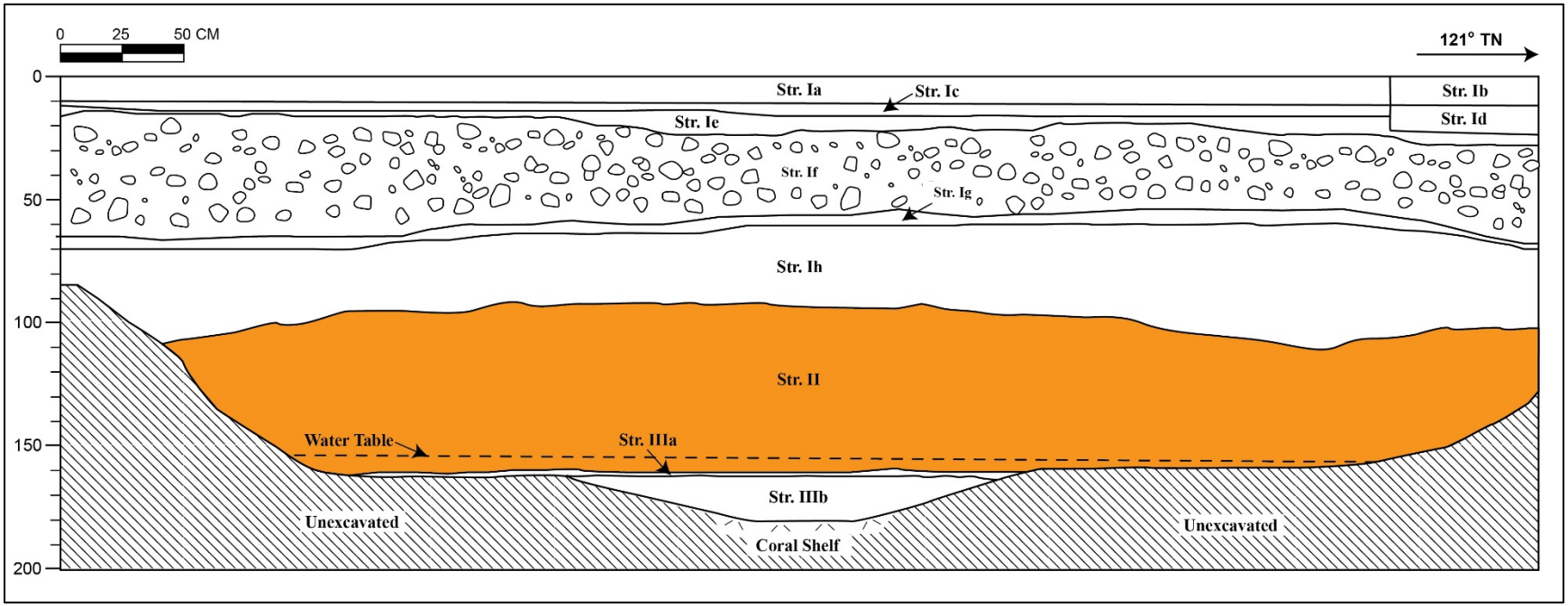

Figure 305. Burke and Hammatt (2012:155) Trench 21 north wall profile showing Stratum II trash deposit (SIHP # -7193) overlying Kewalo wetland sediments (SIHP # -6636), Strata IIIa-b

Table 62. Stratigraphic Summary of Trench 21 (adapted from Burke and Hammatt 2012)

Stratum	Depth (cmbs)	Description of Sediments
Ia	0-10	Asphalt
Ib	0-10	Concrete
Ic	10-14	Crushed coral grading fill; 10YR 8/2, very pale brown.
Id	10-20	Black sand grading fill; 10YR 2/1, black.
Ie	14-25	7.5YR 3/4, dark brown; clay loam; weak, fine, crumb structure; moist, friable consistency; slightly plastic; terrestrial origin; abrupt, smooth lower boundary.
If	16-66	Fill; 7.5YR 2.5/3, very dark brown; stony clay loam; weak, coarse, crumb structure; moist, friable consistency; slightly plastic; terrestrial origin; abrupt, smooth lower boundary; common sub-angular, basalt boulder inclusions.
Ig	52-71	Fill; 10YR 3/4, dark yellowish brown; sandy loam; weak, fine, crumb structure; moist, loose consistency; non-plastic; terrestrial origin; abrupt, smooth lower boundary.
Ih	56-108	Fill; 7.5YR 2.5/3, very dark brown; clay loam; weak, medium, crumb structure; moist, friable consistency; plastic; terrestrial origin; very abrupt, wavy lower boundary.
II	90-160	Fill; 7.5YR 2.5/3, very dark brown; silt loam; weak, fine, crumb structure; moist, friable consistency; non-plastic; terrestrial origin; abrupt, smooth lower boundary; contained substantial amount of historic debris: glass bottles and jars and ceramic fragments; component of SIHP #-7193.
IIIa	158-161	Natural; 10YR 2/1, black; loamy silt; weak, very fine, blocky structure; moist, very friable consistency; slightly plastic; terrestrial origin; diffuse, wavy lower boundary; consists of decaying organic material; peat; many land snail shell inclusions; old A-horizon; component of SIHP #-6636.
IIIb	161-180 (BOE)	Natural; Gley 1 6/5GY, greenish gray; clay; weak, medium, platy structure; wet, sticky consistency; very plastic; mixed origin; lower boundary not visible; gley; overlies coral shelf; component of SIHP #-6636.

(SIHP #-6636). The buried SIHP #-7193 trash deposit overlies the natural Kewalo wetland sediments (Stratum III). The trash deposit (generally designated as Stratum II) occurred between 0.2-1.71 mbs with an average upper boundary of 0.71 mbs. The trash deposit matrix consisted of dark red, brown, or gray silt loams, loamy sands, loamy clays, or clays. The multiple fill deposits overlying SIHP #-7193 consisted of paved surfaces and construction and grading fills.

The SIHP #-7193 trash deposit contained a substantial amount of historic material (Figure 305 through Figure 307). Observed historic materials included whole and fragmentary glass bottles and jars, metal fragments, wire, ceramics, red bricks and cinder blocks, lumber, nails, metal barrel pieces, and tire remnants. The distribution of specific types of refuse items varied and appeared concentrated in some areas; for example several trenches contained a high percentage of only certain bottles (such as soda, beer, or milk) or telephone mouthpieces. A sample of artifacts was collected from individual test excavations. The collected items consist mainly of complete bottles or identifiable fragments with known datable attributes. Miscellaneous and unidentifiable artifacts were briefly described during subsurface excavations, but not collected.

Burke and Hammatt (2012) collected 115 historic artifacts from the buried SIHP #-7193 trash deposit during their archaeological inventory survey (Table 63 and Figure 308 through Figure 314). The artifacts consisted of 93 glass bottles and containers, 14 ceramic tiles, 2 glass telephone mouthpieces, 1 champagne glass stem, 1 glass jar lid, 1 metal spike, 1 metal washer, 1 metal tablespoon, and 1 ceramic bowl fragment. The telephone mouthpieces were identified as Red Cross germ proof glass mouthpieces designed for “candlestick” style phones used in the 1890s to 1930s. The embossing, “Red Cross Germ Proof Mouthpiece/Patented by E. & L. May 3, 1910,” on the pieces suggests a 1910 or later manufacturing date. The glass bottle assemblage provided a much broader time frame with a date range from post-1906 to ca. 1970. Overall, the majority of artifacts were dated from the ca. 1930s to 1950s.

Within the City Center AIS study, SIHP #-7193 occurs only within a single test excavation, T-214 which was excavated as Trench 1 during the Burke and Hammatt (2012) AIS study. The depositional sequence of T-214 is similar to the sequence described by Burke and Hammatt (2012) for excavations within the limits of SIHP #-7193. The coral reef was exposed at the base of excavation below natural Kewalo wetland sediments (Strata IIIb-IIIe; components of SIHP#-6636). Overlying the Kewalo wetland sediments were natural sand (Stratum IIIa) and imported fill (Stratum IIb). The SIHP # -7193 trash deposit (Stratum IIa) was encountered between 0.42-1.44 mbs. Five historic or modern fill strata (Ia-Ie) overlie SIHP #-7193 (Figure 305, Figure 316, and Table 64).

A total of 17 artifacts from SIHP #-7193 were collected from T-214 (see Table 63). These artifacts consist of a cosmetic jar dated to 1920 to 1964, a sauce jar dated to 1938, an unidentified jar dated to 1951, and 14 fragmentary ceramic tiles (undated). Additional artifacts observed, but not collected from SIHP #-7193, include red brick tiles, metal fragments, red bricks, cinder blocks, and wires.

SIHP #-50-80-14-7193 is a buried trash deposit first documented by Burke and Hammatt (2012) during their AIS of the 1391 Kapi‘olani Boulevard parcel. They identified SIHP # -7193 within the eastern half and northern extent of their study area (measuring approximately 0.43 acres); the full extent of SIHP # -7193 remains unknown. SIHP # -7193 was observed within nine of their excavations (Trenches 1, 14–17, and 19–22) beneath historic and/or modern fills

Figure 306. Photograph of *mauka* end of Trench 20 showing SIHP #-7193; view to northeast (Burke and Hammatt 2012:150)

Figure 307. Photograph of portion of backdirt pile for Trench 21 showing bottles removed from SIHP #-7193 (Burke and Hammatt 2012:154)

Figure 308. Photograph of *mauka* end of Trench 22 showing material comprising SIHP #-7193, view to northeast (Burke and Hammatt 2012:158)

Table 63. Artifacts collected from SIHP #-7193 during the current City Center AIS (T-214) and during the Burke and Hammatt (2012) study (Trenches 15–22)

Trench #	Artifact Type	Material	Color	Date	Comments
T-214 (City Center)	Cosmetic jar	Glass	Milk glass	1920-1964	H.A. embossed mark (Hazel-Atlas Glass Co.), “Woodberry” mark
T-214 (City Center)	Sauce jar	Glass	Clear	1938	O-I mark (Owens-Illinois Glass Co.)
T-214 (City Center)	Jar	Glass	Clear	1951	O-I mark
T-214 (City Center)	Tile	Ceramic/mortar	9 blue, 2 yellow, 1 green	Unknown	12 tiles; 4.7-x-4.7-x-1.3 cm
T-214 (City Center)	Tile	Ceramic	Floral	Unknown	10-x-10-x-1 cm
T-214 (City Center)	Tile	Ceramic	Geometric	Unknown	10-x-10-x-1 cm
15	Jar	Glass	Clear	1920-1964	H.A. mark
15	Jar	Glass	Clear	Post-1906	
15	Soda bottle	Glass	Clear	Post-1910	“Pacific” embossed mark (Pacific Soda Works); narrow mouth ABM
15	Soda bottle	Glass	Clear	1946	“Royal Soda”
15	Soda bottle	Glass	Clear	Post-1910	Narrow mouth ABM
15	Soda bottle	Glass	Clear	1920-1940	“Kist” embossed mark
15	Quart spirits bottle	Glass	Clear	Post-1920	Narrow mouth ABM
15	Sauce bottle	Glass	Clear	1920-1964	H.A. markings
15	Soda bottle	Glass	Clear	1940s-1950s	Pyroglazed label (ACL)

Trench #	Artifact Type	Material	Color	Date	Comments
15	Drinking glass	Glass	Clear	N/A	N.A. mark; long-stemmed champagne glass form
15	Spirits pint flask	Glass	Clear	Post-1940	O-I mark; stippling
15	Spirits bottle	Glass	Clear	1943	O-I and Duraglas marks; stippling
15	Spirits bottle	Glass	Light green	1943	O-I mark, push up base; made in Cuba
15	Sauce bottle	Glass	Clear	Post-1910	Narrow mouth ABM, external thread; has heat deformation
15	Jar lid	Glass	Clear	Unknown	5.3 cm diameter
15	Medicine or toiletry bottle	Glass	Clear	1935 or 1945	O-I mark
15	Extract bottle	Glass	Clear	1925-1930	“I.P.G.” (Illinois Pacific Glass Corp.) and “J.A.F.” (J. A. Folger) embossed marks
15	Telephone mouthpiece	Glass	Clear	Post-1910	Red Cross Germ Proof Glass Mouthpiece Co.; 2 mouthpieces
15	Beer bottle	Glass	Emerald green	1944	Duraglas and O-I marks
15	Beer bottle	Glass	Emerald green	Post-1910	Narrow mouth ABM
15	4/5 quart spirits bottle	Glass	Clear	1920-1964	H.A. mark
15	Jar	Glass	Clear	1939	O-I and “Best Foods” marks
15	Jar	Glass	Clear	Unknown	“Best Foods” embossed mark; design patent: 80918
15	Soda bottle	Glass	Clear	1946	“Royal Soda”

Trench #	Artifact Type	Material	Color	Date	Comments
15	Soda/beer bottle	Glass	Clear	1932 or 1942	O-I mark
15	Soda/beer bottle	Glass	Clear	1933 or 1943	O-I mark
15	Soda/beer bottle	Glass	Clear	Post-1910	Narrow mouth ABM
15	Jar	Glass	Amber	1944	Duraglas and O-I marks
16	Ice cream jar	Glass	Clear	Post-1933	Pyroglazed
16	4/5 quart spirits bottle	Glass	Clear	Post-1940	O-I mark; stippling
16	4/5 quart spirits bottle	Glass	Clear	1938-1977	A.H. embossed mark (Anchor Hocking Glass Co.)
17	Half pint milk bottle	Glass	Clear	Post-1933	Pyroglazed; 2 bottles
17	Quart milk bottle	Glass	Clear	1944	“Dairymen’s Association” label; Duraglas and O-I marks
17	Quart milk bottle	Glass	Clear	Post-1940	Pyroglazed; Duraglas mark
17	Beer bottle	Glass	Clear	1937	O-I mark
17	Beer bottle	Glass	Clear	Post-1910	Narrow mouth ABM
17	Beer bottle	Glass	Clear	Post-1940	“Ball” embossed mark (Ball Glass Mfg. Co.); stippling
17	Soda bottle	Glass	Light green	1950s	“Royal Crown” embossed mark; O-I mark
17	Soda bottle	Glass	Light green	1950s	“Coca-Cola” embossed mark
17	Sauce jar	Glass	Clear	1920-1964	H.A. mark
17	Small jar	Glass	Clear	Post-1906	

Trench #	Artifact Type	Material	Color	Date	Comments
17	Household bottle	Glass	Clear	1934-1968	Overlapping GC mark (Glass Containers Corp.)
17	Spike	Metal	N/A	Unknown	Possibly railroad related; 7 1/2 in long
17	Washer	Metal	N/A	Unknown	2.1 cm diameter
17	Spoon	Metal	N/A	Unknown	Dinner-sized, 14.2 cm long
17	Bowl fragment	Ceramic	White	Unknown	Marking is unclear
20	Household bottle	Glass	Clear	1942	O-I mark
20	Beer bottle	Glass	Amber	1934 or 1944	O-I mark
20	Beer bottle	Glass	Clear	1942	O-I mark
20	Beer bottle	Glass	Dark green	1936 or 1946	O-I mark
20	Beer bottle	Glass	Amber	1934 or 1944	O-I mark
20	Beer bottle	Glass	Amber	1944	O-I mark
20	Beer bottle	Glass	Amber	1944	O-I mark
20	Beer bottle	Glass	Clear	1942	O-I mark
20	Beer bottle	Glass	Amber	1933 or 1943	O-I mark
20	Beer bottle	Glass	Amber	1937	O-I mark
20	Soda bottle	Glass	Clear	1934 or 1944	O-I mark
20	Beer bottle	Glass	Clear	1938-1969	Armstrong Cork Co. (Glass Division) embossed mark
20	Beer bottle	Glass	Clear	1940-1969	Armstrong Cork Co. (Glass Division) embossed mark; stippling

Trench #	Artifact Type	Material	Color	Date	Comments
20	Beer bottle	Glass	Clear	1940-1969	“Ball” embossed mark; stippling
20	Soda bottle	Glass	Clear	1950-1955	“Coca-Cola” embossed mark
20	Jar	Glass	Clear	Post 1906	Golden Mustard
20	Beer bottle	Glass	Clear	1934-1968	Overlapping GC mark (Glass Containers Corp.)
20	Soda bottle	Glass	Green	1939	O-I mark
21	Soda bottle	Glass	Emerald green	1943	“7-Up” ACL; bottled in Honolulu; O-I mark
21	Soda bottle	Glass	Aqua	Early to mid-1950s	“Coca-Cola” embossed mark; 3 bottles
21	Soda bottle	Glass	Clear	1932 or 1942	O-I mark
21	Beer bottle	Glass	Clear	1915-1980	Obear Nestor mark; 2 bottles
21	Beer bottle	Glass	Clear	1941	“Regal Amber Brewing Co.” embossed mark; O-I mark; stippling
21	Beer bottle	Glass	Clear	Post-1910	“Primo Brewing Corp” mark; narrow mouth ABM
21	Jar	Glass	Clear	1920-1964	H.A. mark
21	Jug	Glass	Clear	Post-1906	Wide mouth
21	Quart bottle	Glass	Amber	Circa 1958	“Palolo” embossed mark; M.G. mark (Maywood Glass Co.)
21	Beer bottle	Glass	Amber	1938	O-I mark
21	Beer bottle	Glass	Amber	Circa 1970	N.W. mark (Northwestern Glass Co.)

Trench #	Artifact Type	Material	Color	Date	Comments
21	Beer bottle	Glass	Clear	Post-1910	Narrow mouth ABM; double diamond mark
21	Beer bottle	Glass	Green	1936 or 1946	O-I mark
21	Beer bottle	Glass	Clear	1942	O-I and Duraglas marks; stippling
21	Beer bottle	Glass	Amber	1942	O-I and Duraglas marks; stippling
21	Ice cream jar	Glass	Clear	1933	Pyroglazed “Dairymen’s Association”
22	1/2 pint milk bottle	Glass	Clear	1942	O-I mark
22	1/2 pint milk bottle	Glass	Clear	Post-1933	Pyroglazed “Dairymen’s Association”
22	1/2 pint milk bottle	Glass	Clear	Post-1940	Duraglas mark
22	1/2 pint milk bottle	Glass	Clear	Post-1933	Pyroglazed
22	Quart milk bottle	Glass	Clear	Post-1933	Pyroglazed
22	Beer bottle	Glass	Amber	1944	O-I mark
22	Beer bottle	Glass	Clear	1942	O-I mark
22	Beer bottle	Glass	Clear	1933-1954	O-I mark
22	Beer bottle	Glass	Clear	1942	O-I and Duraglas mark
22	Beer bottle	Glass	Clear	1942	O-I and Duraglas mark
22	Quart milk bottle	Glass	Clear	1931 or 1941	O-I and Duraglas mark; pyroglazed “Dairymen’s Association”
22	Beer bottle	Glass	Clear	1933-1954	O-I and Duraglas mark
22	Beer bottle	Glass	Clear	1920-1964	H.A. mark

Figure 309. Sample of soda bottles, from left to right: ca. 1958, clear, “Palolo” embossed, soda bottle; 1943, green, “7-Up” painted label, soda bottle (Canada Dry Bottling Co.); early to mid-1950s, aqua, “Coca-Cola” embossed, soda bottle (Burke and Hammatt 2012:169)

Figure 310. Sample of soda bottles, from left to right: 1950s, clear, “Royal Crown” painted label, soda bottle; 1920-1940, clear, “Kist” embossed, soda bottle; 1946, clear, “Royal Soda” embossed, soda bottle; post ca. 1920, green, “Pacific Soda Works” embossed, soda bottle (Burke and Hammatt 2012:170)

Figure 311. Sample of spirits (ale, beer, whiskey, etc.) bottles, from left to right: post-1940, clear, spirits bottle; 1942, amber, long-neck beer bottle; 1936/1946, green, short-neck, beer bottle; post-1940, clear, short-neck, beer bottle with stippling; 1948, amber, short-neck, beer bottle (Burke and Hammatt 2012:171)

Figure 312. Sample of milk bottles, from left to right: post-1933, “Dairymen’s Ice Cream” painted label, milk bottle fragment; post-1933, one-half pint, pyroglazed, “Dairymen’s Association,” milk bottle; post-1940, one quart, pyroglazed, “Dairymen’s Association,” milk bottle; 1944, one quart, pyroglazed, “Dairymen’s Association” milk bottle (Burke and Hammatt 2012:172)

Figure 313. Sample of wide-mouth jars, from left to right, top to bottom: 1925-1930, clear, rectangular jar embossed “JAF” for J. A. Folgers spices and extracts; 1939, clear, round jar, embossed “Best Foods;” 1920-1964, milk glass, round jar, probably cold cream, embossed “Woodbury;” post-1906, clear, barrel-shaped jar (Burke and Hammatt 2012:173)

Figure 314. Sample of “Red Cross Germ Proof Mouthpiece/Patented by E. & L. May 3, 1910” for use with candlestick telephones (Burke and Hammatt 2012:173)

Figure 315. Photograph of a candlestick phone with a Red Cross germ-proof mouthpiece (from Wolff 1996)

Figure 316. Southwest profile of T-214, view to south

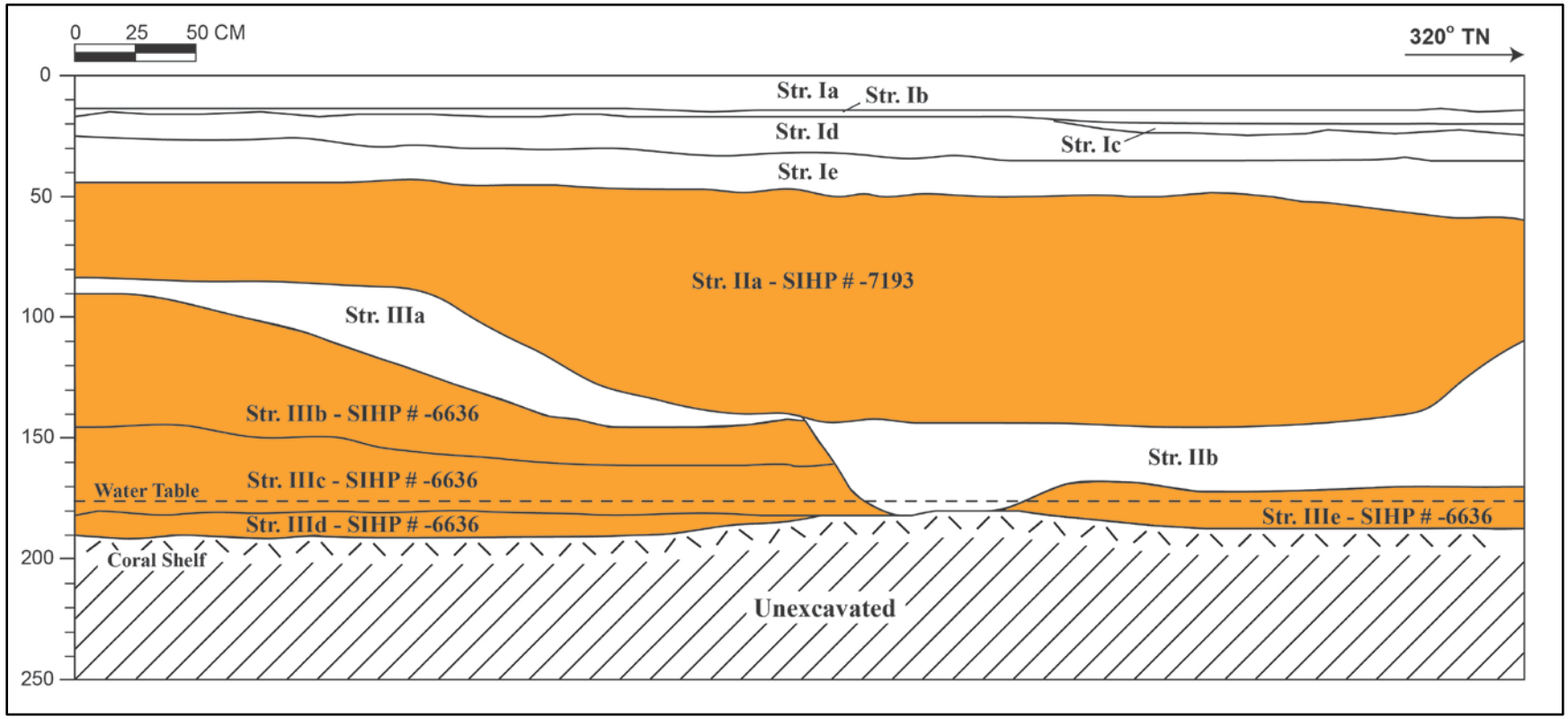

Figure 317. T-214 southwest wall profile, showing buried trash deposits (SIHP #-7193), Stratum IIa

Table 64. Stratigraphic Description of the Southwest Profile of T-214

Stratum	Depth (cmbs)	Description
Ia	0-14	Concrete
Ib	25-59	Fill; 7.5 YR 3/3, dark brown; silt loam; weak, fine, crumb structure; moist, friable consistency; non-plastic; terrestrial origin; very abrupt, wavy lower boundary; crushed coral inclusions; grading fill.
Ic	19-24	Asphalt
Id	15-35	Fill; 5 Y 8/2 (very pale brown); extremely gravelly sand; structureless, single-grain; moist, friable consistency; non-plastic; abrupt, smooth lower boundary; crushed coral base course
Ie	14-19	Fill; 5 YR 3/3, dark reddish brown; gravelly silt loam; weak, very fine, crumb structure; moist, very friable consistency; slightly plastic; terrestrial origin; abrupt, wavy lower boundary; imported fill.
IIa	42-144	Fill; 5 YR 4/2, dark reddish gray; gravelly sand; fine to coarse; single-grain; moist, loose consistency; non-plastic; marine origin; clear, wavy lower boundary; contains red brick tiles, metal fragments, ceramic tiles, glass jars, red bricks, cinder blocks, and wires; component of SIHP #-7193.
IIb	109-180	Fill; 5 YR 3/3, dark reddish brown; gravelly silt loam; moderate, fine, crumb structure; moist, friable consistency; slightly plastic; terrestrial origin; diffuse, wavy lower boundary; imported fill.
IIIa	83-145	Natural; 10 YR 6/3, pale brown; sand; fine; single-grain; moist, loose consistency; non-plastic; marine origin; diffuse, wavy lower boundary; partially disturbed.
IIIb	89-161	Natural; 10 YR 5/2, grayish brown; clay; moderate, medium, platy structure; moist, friable consistency; very plastic; mixed origin; diffuse, wavy lower boundary. Component of SIHP #-6636.
IIIc	144-180	Natural; Gley 2 6/10 G, greenish gray; clay; weak, medium, platy structure; moist, very friable consistency; plastic; mixed origin; diffuse, smooth lower boundary; gley. Component of SIHP #-6636.
IIId	180-190	Natural; Gley 1 7/5 GY, light greenish gray; sandy clay; fine; weak, medium, platy structure; moist, friable consistency; slightly plastic; mixed origin; lower boundary not visible; gley; overlies coral shelf. Component of SIHP #-6636.
IIIe	168-186	Natural; 10 YR 2/1, black; silt loam; weak, fine, platy structure; wet, slightly sticky consistency; non-plastic; terrestrial origin; abrupt, wavy lower boundary; many fine to medium roots; consists of decaying organic material; peat; old A-horizon; overlies coral shelf. Component of SIHP #-6636.

and overlying the natural Kewalo wetland sediments (SIHP #-6636). Burke and Hammatt (2012) collected 115 artifacts indicating that SIHP #-7193 likely was used as a trash disposal area through the late 1950s. SIHP #-7193 was represented within only one of the City Center excavations (T-214). It was encountered at 0.42 mbs and the diagnostic artifacts were identified as dating from the early- to mid-twentieth century. SIHP #-7193 is interpreted as a buried remnant trash deposit likely related to land reclamation activities dating from the early- to mid-twentieth century.

SIHP # 50-80-14-7193 was previously determined ineligible for listing on either the Hawai‘i or National Registers by Burke and Hammatt (2012). However, SIHP #-7193, a buried trash deposit, maintains the same integrity of location, design, and materials as SIHP # 50-80-14-7189. Based on the results of the current City Center AIS study, and in consultation with SHPD, CSH recommends that SIHP #-7193 retains sufficient integrity to recommend eligibility to both the Hawai‘i Register and the National Register under Criterion D, exclusively for its information potential.

SIHP # 50-80-14-7193 has provided information, and can provide additional information, on early-to mid-twentieth century reclamation and large-scale municipal trash disposal efforts. The potential for further identification and impact of additional exposures of this and other buried burnt trash deposits within the project APE warrants implementation of an archaeological monitoring program. Archaeological monitoring will recover data on all locations of SIHP #-7193 encountered during construction. If encountered, documentation will include plan and/or profile maps, GPS location, photographs, and sample collection. These data will be used to better characterize the content and depositional age of SIHP #-7193 and facilitate comparison with other trash disposal features.

5.3.12 SIHP #50-80-14-7197

FORMAL TYPE:	Subsurface cultural deposit and pit feature
FUNCTION:	Habitation and former land surface
PREVIOUS DOCUMENTATION:	Pammer et al. (2011)
AGE:	Late pre-Contact to early post-Contact
NUMBER OF FEATURES:	1
TYPES OF FEATURES	1 fire pit
DISTRIBUTION:	Approximately 0.03 acres (previously identified)
LOCATION:	Southwest (*makai*) of Halekauwila Street, between South and Keawe Streets (West Kaka‘ako Geographic Zone)
TAX MAP KEY:	[1] 2-1-030: 001 (Pammer et al. 2011)
LAND JURISDICTION:	Kamehameha Schools
TEST EXCAVATIONS:	None

SIHP #50-80-14-7197 is a previously-identified buried culturally-enriched A-horizon and an associated firepit feature located southwest (*makai*) of Halekauwila Street, between South and Keawe Streets within the West Kaka‘ako Geographic Zone (Figure 318). This archaeological cultural resource was first identified by Pammer et al. (2011) during an archaeological inventory survey for the Block 2 Parking Lot located between the HHCTCP alignment along Halekauwila Street and an additional HHCTCP utility corridor along Pohukaina Street as well as a portion of the Civic Center Station footprint (Figure 319).

Pammer et al. (2011) identified a portion of a subsurface clayey sand A-horizon (designated as SIHP #-7197) within Test Trench 26 (Figure 320). A fire pit was identified beneath the A-horizon (Stratum III) in a clayey sand deposit (Stratum Iva). The firepit was designated SIHP #-7197 Feature 1 (see Figure 320).

The stratigraphy documented in Trench 26 consisted of historic and modern fill deposits (Strata Ia-Id) overlying a burnt trash deposit (Stratum IIa), overlying several earlier historic fill deposits (Strata IIb and IIc). A truncated A-horizon (Stratum III) occurred below the lower fills. Below Stratum III the deposits consisted of natural marine sediments (Strata Iva and IVb) and the coral shelf at the base of excavation (Figure 321, Figure 322, and Table 65).

Pammer et al. (2011:243) described SIHP #50-80-14-7197 as a late pre-Contact/early post-Contact cultural layer (Stratum III) and associated firepit (Feature 1). This historic property was observed only within Test Trench 26, overlying a pocket of undisturbed sand (Stratum Iva). This cultural layer represents one of only a few portions of the project area not disturbed by post-contact activities, including the salt pans (SIHP # - 7190). Feature 1 is of a firepit containing fire-cracked rock, minimal shell, and a high concentration of charcoal. It was identified within Stratum IVa between 0.87 and 1.02 mbs. The firepit likely originated from the cultural layer (Stratum III); its upper matrix was lighter in color than the more charcoal-rich lower matrix. The firepit measured about 0.4 m across in profile. A charcoal sample from Feature 1 was identified as a probable fern stem (likely a native, short-lived shrub), or a longer-lived palm (not coconut or

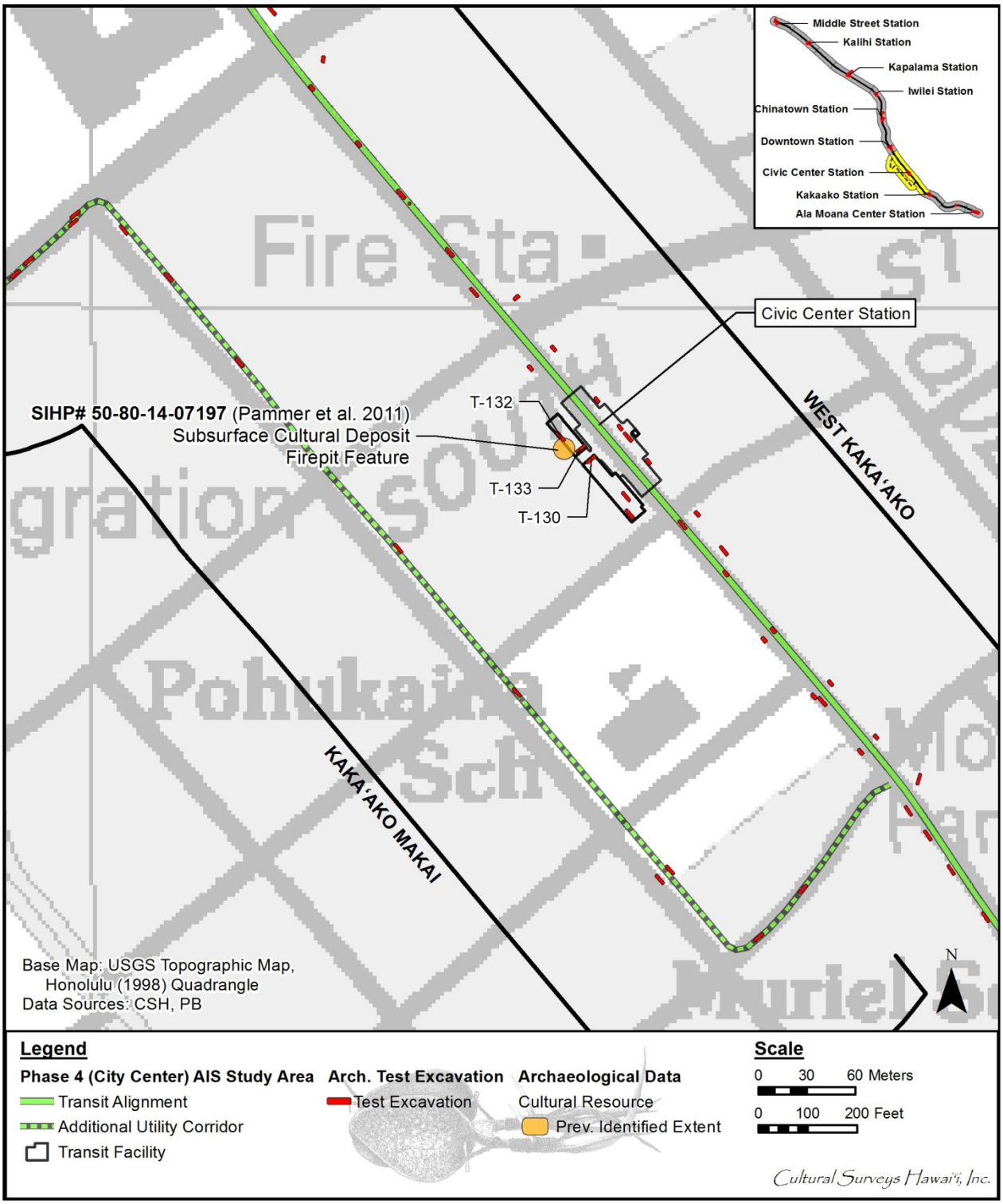

Figure 318. Location of SIHP #-7197 within the West Kaka‘ako Geographic Zone (base map: USGS 1998 Topographic Map of Honolulu Quadrangle)

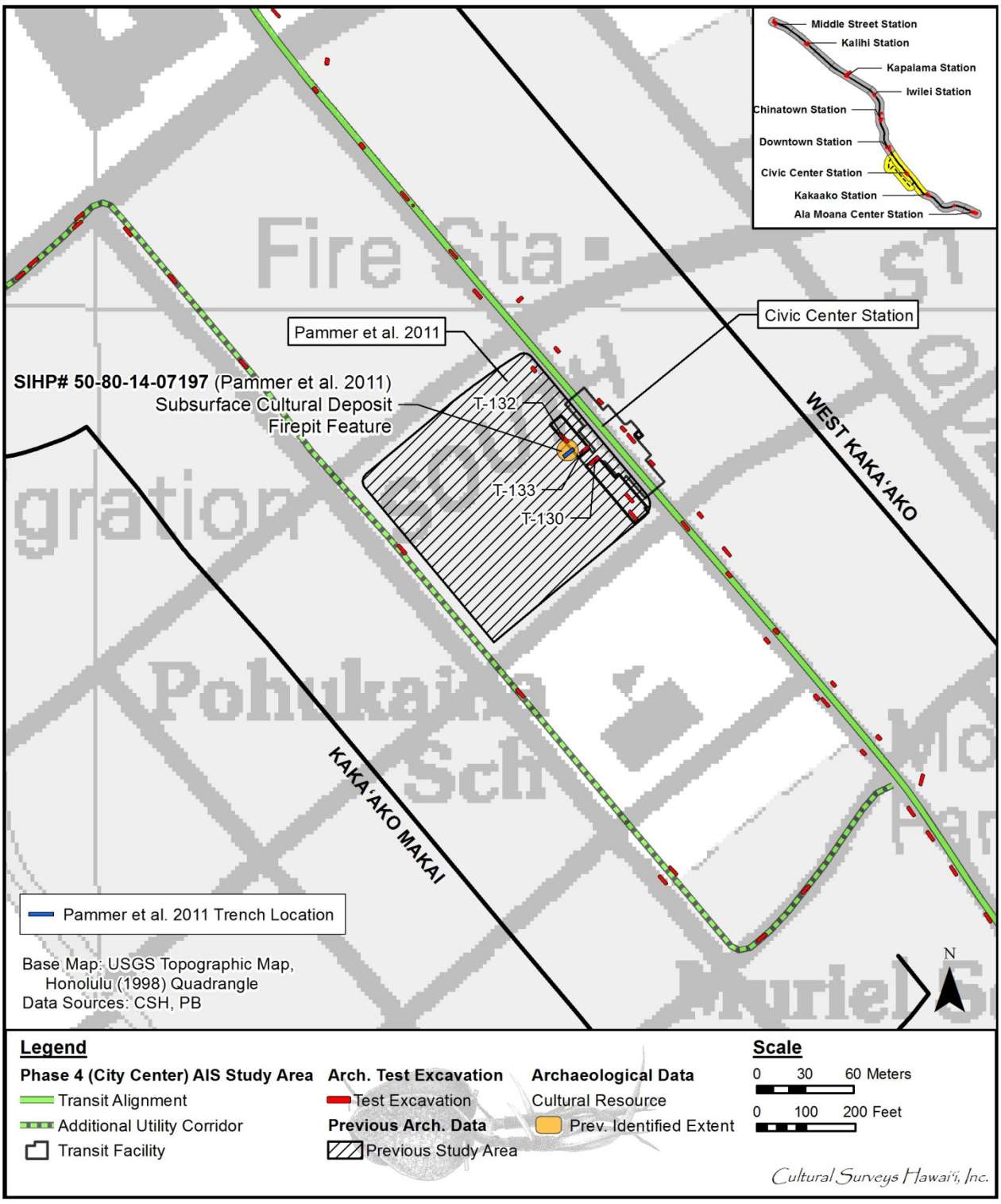

Figure 319. Location of SIHP #50-80-14-7197 and the Pammer et al. (2011) study area within the West Kaka‘ako Geographic Zone (base map: USGS 1998 Topographic Map of Honolulu Quadrangle)

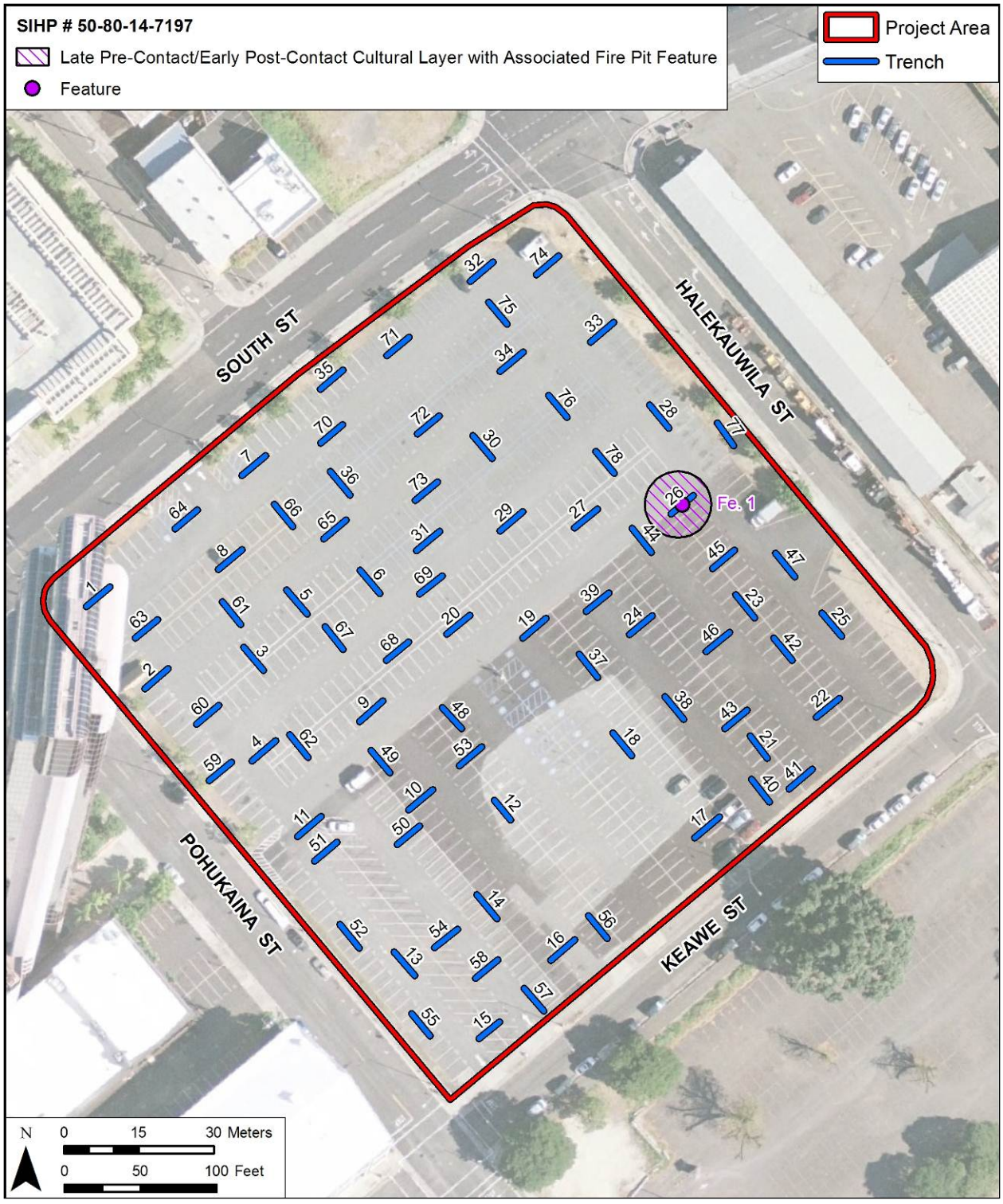

Figure 320. Pammer et al. (2011, Vol. I:244) study area showing the location of buried cultural layer (SIHP #-7197) and firepit (SIHP #-7197 Feature 1)

Figure 321. Photograph of northeast end of Test Trench 26 (adapted from Pammer et al. 2011, Vol. II:111)

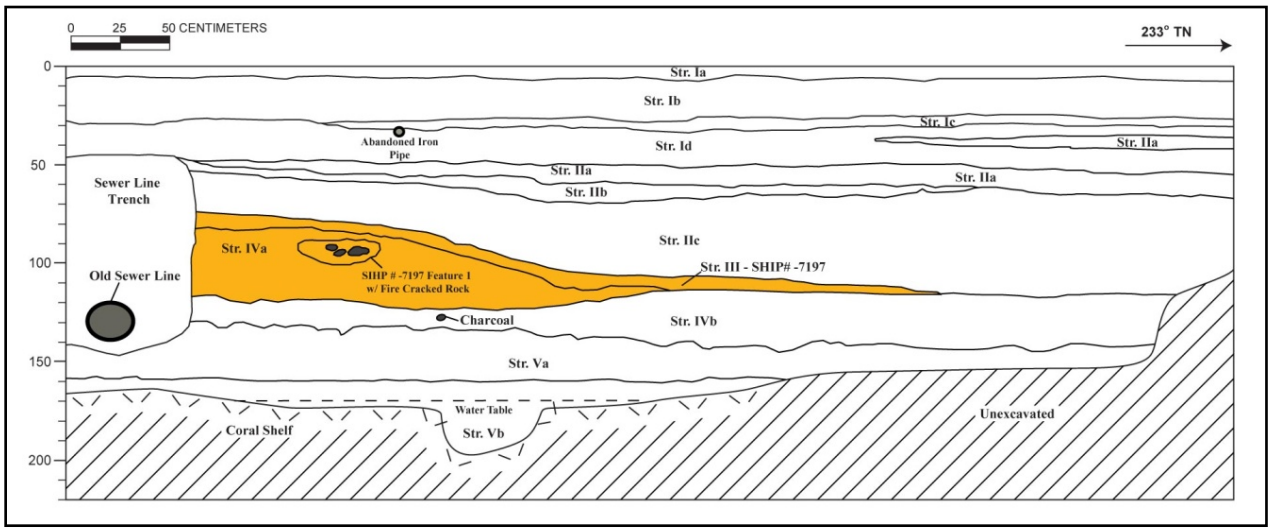

Figure 322. Pammer et al. (2011, Vol. II:109; color not in original) Test Trench 26 southwest wall profile, showing cultural layer (SIHP #-7197), Stratum III, and associated firepit (SIHP # -7197 Feature 1)

Table 65. Test Trench 26 Stratigraphic Description (adapted from Pammer et al. 2011)

Stratum	Depth (cmbs)	Description
Ia	0-6	Asphalt; 10 YR 5/1 gray; structureless (massive); extremely hard dry consistency; indurated cementation; non-plastic; terrestrial origin; very abrupt, smooth lower boundary. Surfacing for parking lot
Ib	6-30	Fill; 10 YR 5/3 brown gravelly silt loam; structureless (single-grain); dry loose consistency; non-plastic; terrigenous origin; clear, smooth lower boundary. General grading fill material
Ic	25-32	Fill; 2.5 YR 3/2 very dark grayish brown very gravelly clay loam; structureless (single-grain); moist friable consistency; slightly plastic; terrigenous origin; abrupt, smooth but broken/discontinuous lower boundary. Grading fill
Id	30-55	Fill; 10 YR 7/3 very pale brown crushed coral and medium grained sand; structureless (single-grain); dry weakly coherent consistency; non-plastic; marine origin; abrupt, wavy smooth but irregular lower boundary. Marine based fill material
IIa	50-65	Fill; 2.5 YR 3/2 very dark grayish brown clay loam; structureless (single-grain); moist firm consistency; slightly plastic; terrigenous origin; clear, smooth but broken/discontinuous lower boundary. A thin layer of disturbed burnt waste, possibly containing material related to open air burned debris from 1920s
IIb	50-70	Fill; 10 YR 3/1 very dark gray clayey sand; structureless (single-grain); moist friable consistency; slightly plastic; mixed origin; abrupt, wavy lower boundary. Intermixture of Stratum IIb and Stratum IId contains some charcoal flecking, former historical surface layer
IIc	60-115	Fill; 10 YR 6/4 light yellowish brown clayey sand; structureless (single-grain); moist very friable consistency; slightly plastic; marine origin; abrupt to clear, wavy lower boundary; contains some very fine roots. Hydraulic fill likely associated with dredging of Honolulu Harbor area for covering over Kaka‘ako wetlands
III	75-115	A-horizon; 10 YR 4/2 dark grayish brown clayey sand; structureless (single-grain); moist very friable consistency; non-plastic; marine origin; clear, wavy but broken/discontinuous lower boundary; contains some very fine roots, charcoal flecking; cultural layer; designated SIHP #50-80-14-7197
IVa	85-120	10 YR 6/4 light yellowish brown clayey sand; structureless (single-grain); moist very friable consistency; slightly plastic; marine origin; abrupt to clear, wavy lower boundary. Natural marine deposited clayey sand. Contained firepit designated SIHP #50-80-14-7197 Feature 1
IVb	115-145	10 YR 4/6 dark yellowish brown coarse sand; moist loose consistency; non-plastic; marine origin; diffuse, irregular lower boundary; contains some charcoal. Natural sand deposit

Stratum	Depth (cmbs)	Description
Va	130-160	Gley 1 5/5G greenish gray clayey sand; structureless (single-grain); wet slightly sticky consistency; marine origin; clear, smooth lower boundary. Marine clayey sand deposit overlying coral cobble shelf
Vb	160-190 (BOE)	Gley 1 5/5G greenish gray coral cobbles with sandy clay; structureless (massive); wet sticky consistency; slightly plastic; marine origin; bottom of excavation. Coral cobble shelf, groundwater level at 170 cmbs

Loulu). This sample was sent to Beta Analytic, Inc. for radiocarbon dating. The Feature 1 sample (Beta-303200) yielded a most likely date range of A.D. 1735–1805 (calibrated 2-sigma, 44.5% probability).

During the current City Center archaeological inventory survey, three test excavations (T-130, T-132, and T-133) were investigated in close proximity to the previously-identified location of SIHP #-7197 based on Pammer et al. (2011) (see Figure 318 and Figure 319). However, none of the three test excavations yielded evidence of SIHP #-7197. The stratigraphy in each consisted mainly of fill strata overlying natural marine deposits and the coral shelf. A burned trash fill layer (SIHP #-7189) also was identified in T-130 and T-132. Although SIHP # -7197 was not encountered during the current subsurface testing, previous data indicates SIHP #-7197 extends into the Civic Center Station footprint. It is anticipated that SIHP #-7197 may be encountered during future project excavation in this vicinity.

Based on the guidance of National Register Bulletin No. 15, SIHP #-7197 retains its integrity of location, design, and materials. SIHP #-7197 was previously determined eligible to the Hawai‘i Register under Criterion A (associated with events that have made an important contribution to the broad patterns of our history) and D (has yielded, or is likely to yield information important for research on prehistory or history) by Pammer et al. (2011). Based on the results of the current archaeological inventory survey, and in consultation with SHPD, CSH recommends that SIHP #-7197 does not to convey its significance under Criterion A for either the Hawai‘i or National Registers. The SIHP #-7197 former land surface and associated firepit are buried, and their surroundings have been completely altered by historic and modern fill, grading, and development. Accordingly, CSH recommends that this cultural resource maintains the integrity to support its historic significance only under Criterion D of the Hawai‘i Register and recommends eligibility to the National Register under Criterion D, exclusively for its information potential.

SIHP #-7197 has provided information, and could potentially provide additional information, on late pre- to early post-Contact land use within Kaka‘ako. The potential for further identification of and impact to this buried A-horizon during project construction within the current project APE warrants the implementation of an archaeological monitoring program. Archaeological monitoring will focus on identifying the extent of SIHP #-7197 within the current project APE. If SIHP #-7197 is identified within the project APE, the buried A-horizon and any potential archaeological features will be mapped in plan and/or profile, photographed, located by GPS, and sampled for wood taxa identification, radiocarbon and/or palynological analysis. The analysis of samples from SIHP #-7197 will facilitate documentation of the content and age of the buried A-horizon and associated features, as well as comparisons with other culturally-enriched A-horizon deposits in the vicinity.